

# The Role of Social Networking Tools in Facilitating Knowledge Management and Sharing Processes at the UAE Municipalities: Opportunities and Challenges.

by

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## ABSTRACT

This thesis contributes to knowledge-based view literature by proposing a novel approach to the integration of two key perspectives in knowledge management: the objectivist and practice-based perspectives. This integration can provide the basis for the adoption and use of information and communication technology (ICT) tools for the sharing and integration of knowledge. This integrative approach is aligned with the knowledge-based view of the firm and can provide valuable opportunities for the transfer of knowledge.

The objectivist perspective has thus met with limited success due to the inherent difficulty in codifying knowledge, particularly as it relates to strategies for the effective transfer of knowledge within organisations. On the other hand, the practice-based perspective continues to develop but has not yet reached a maturity level to justify its use on a large scale. Neither one of these two perspectives alone is able to deal with the challenges of transferring and integrating knowledge.

The recent knowledge management literature has emphasised the importance of interactive knowledge management technologies, which have manifested themselves in the form of social networking tools in bringing the human side into the knowledge management equation. It is argued that such technologies have distinct features that encourage knowledge sharing, social interaction, and user participation. Yet, very little is known on the benefits, challenges and the factors leading to its successful implementation within organisations.

This case study examines the introduction of social networking tools in the UAE municipalities and identifies the dynamics of implementing these tools for knowledge management. This in turn enabled the development of a set of ICT features that are in-line with the requirements of the knowledge-based view of the firm and are essential to facilitate an integrated perspective to knowledge management. These features can be tested in future studies and utilised to provide the foundation for the selection and use of ICT for knowledge management.

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## Introduction

The knowledge-based view of the firm identifies knowledge as a valuable organisational asset that enables sustainable competitive advantage (Grant, 2002; Ipe, 2003). An organisation's ability to transfer knowledge between individuals and teams and to utilise that knowledge to achieve its goals and objectives is increasingly considered important in gaining a competitive advantage (Powell and Ambrosini, 2011). Many organisations are using information and communication technologies specifically to facilitate the diffusion and integration of knowledge (Alavi and Leidner, 2001).

Nonetheless, organisations often do not reap the anticipated benefits from the implementation of information and communication technologies for knowledge management (Hahn and Wang, 2009). This could be attributed to organisations applying the objectivist perspective to implementing information and communication technologies for knowledge management (Hislop, 2005; Massey et al., 2002). The objectivist perspective relies heavily on the codification strategy of managing and sharing knowledge. It often does not provide enough consideration to the people, cultural and social aspects of the organisation (Butler and Murphy, 2007; Kuo and Lee, 2011). Some scholars have called for a more practice-based perspective to managing and sharing knowledge, one that focuses on the personalisation of knowledge (Hislop, 2005; Empsom, 2001; Suchman, 2003; Walsham, 2001). Yet, there is so much debate surrounding the practice-based perspective in terms of the richness of interaction (Goodall and Roberts, 2003; Roberts, 2000; Symon, 2000) and the prevalence of trust issues (Butler and Murphy, 2007; Roberts, 2000). There

is a general consensus that for information and communication technologies to succeed, a transformation in design philosophies is required to enable people to actively infer and construct meaning (Butler and Murphy, 2007; Hahn and Wang, 2009; Hislop, 2005; Paroutis and Saleh, 2009).

There has been an increasing, recent interest in academic journals and organisations on the notion of 'Enterprise 2.0' (Bibikas, et al., 2009). It involves the application of social networking tools (e.g. wikis, blogs, RSS) within organisations or between organisations and their partners or customers (McAfee, 2006). The transformational role of social networking tools from previous forms of organisational contextures is implied by the decimal point included in the end of the term (Bibikas, et al., 2009). Nonetheless, doubt in terms of the capability for organisational transformation of social networking tools inside organisations has also been expressed (Bibikas, et al., 2009; Davenport, 2007; Stenmark, 2008). Can some of the basic social organisational constructions for instance individual, teams and units be affected by the implementation of such tools (Bibikas, et al., 2009)? Can the social networking tools facilitate the necessary interaction, collaboration and participation amongst individuals, teams and units and in return facilitate knowledge management and transfer in organisations, or are they just other disruptive technologies?

In this thesis, I explore whether social networking tools can enhance knowledge management in an organisational context. The concept of 'Enterprise 2.0' and use of social networking tools in organisation has not only dominated the discourse surrounding information and communication technology applications, but also the associated managerial approaches (Bibikas, et al., 2009). As a result, there is an intense debate amongst researchers who argue that the term 'Enterprise 2.0' does

not have anything to provide except basic managerial aspects related to the use of generic networked business applications, while other researchers argue that Enterprise 2.0 promises something new: an adaptable and flexible approach to organisational knowledge management strategies (Bibikas, et al., 2009; Patrick and Dostika, 2007; McAfee, 2006).

The first objective of this thesis is to examine the potential of social networking tools in facilitating the knowledge management processes and how are these tools currently being applied in an organisational context for knowledge management. Issues concerning the role of generic groupware technologies (e.g. email, electronic bulletin boards, mobile communications and etc.) have dominated the knowledge management literature (Bhatt et al., 2005). Nonetheless, there are limited studies that examine the use of various social networking tools (including: blogs, wikis, RSS, tags, collaborative workspace and etc.) throughout the process of knowledge management that in return examine their effects, if any, on organisational dynamics (Bibikas, et al., 2009; Van Zyl, 2009).

The second objective of this thesis is to determine the factors that influence the usage of social networking tools for knowledge management. A wide range of literature addresses the role of information and communication technologies in facilitating knowledge management processes. Nonetheless, and despite the fact that much has been written to argue the transformative role of social networking tools in organisations (Bibikas, et al., 2009), there is limited research that investigates the actual effect of applying these tools for knowledge management in organisations (Bibikas, et al., 2009; Patrick and Dostika, 2007; McAfee, 2006). A review of the literature applied since the introduction of social networking tools for knowledge management reveals that most of the current research papers are

conceptual or view point papers and current research emphasises what social networking is, how are they structured and why social networks exist (Van Zyl, 2009). However, studies that examine the implementation of social networking tools in organisations for knowledge management and sharing are limited (Paroutis and Saleh, 2009; Van Zyl, 2009). In addition, the majority of the research conducted on the value and opportunities of these tools are based upon private organisations such as: Gardner, Clearswift, IBM, KPMG and MessageLabs (Van Zyl, 2009).

This research provides insights for theoretical development and empirical data from a government organisation setting and analyses if these social networking tools have the potential to provide something new to knowledge management and processes, inside the implementing organisation. Knowledge management has been identified as critical to government organisations to enable the management of public data, improve decision-making and to serve the public in an efficient and effective manner (Jashpara, 2011). Interaction, participation and transparency are often identified as key principles to achieving government knowledge management objectives (Dalkir, 2011). Arguably, social networking tools provide a transparent platform for interaction and participation to occur within and across organisations. Nonetheless, the number of studies addressing the potential of social networking tools in facilitating the knowledge management processes in government organisations is limited.

This thesis examines the introduction of social networking tools for knowledge management across the UAE municipalities. There is a dearth in knowledge management literature and studies in the UAE context (Biygautane and Al-Yahya, 2011; Boumarafi and Jabnoun, 2008). A recent review revealed no more than three studies. Furthermore, the UAE economy is heavily dependent on oil, hence it has

been identified that the government needs to work on diversifying the economic resources of the country by 'approaching development from a Knowledge Management perspective and adapting policies to increase know how and knowledge attributes that can improve people's lives in myriad ways....' (World Bank Report, 1998/99, p. 77). As a result of the aforementioned and the recent economic crisis, knowledge development objectives have been embedded in the 2007-2008 public policy agenda and the 2021 vision for the Government of Abu-Dhabi. Government entities in Abu-Dhabi were mandated to incorporate the latest knowledge management practices and tools contributing towards the vision of the government of Abu-Dhabi (to be one of the world's leading governments and to create a sustainable knowledge economy). The Department of Municipal Affairs (DMA) took the lead and is the first government entity to launch a knowledge management framework in collaboration with Abu-Dhabi, AlAin and Western Zone municipalities.

This case study deemed significant since knowledge management is a national strategic priority and given that the UAE is a leader in the adoption of the latest technologies. The framework that was implemented at the municipalities adopted the latest social networking tools available. Moreover, the framework, called 'Musharaka' (translated from Arabic as Participation), is the first knowledge management framework to be launched across all government entities in Abu-Dhabi. If this pilot project was deemed successful it would be adopted by other government entities across the Emirate of Abu-Dhabi.

Henceforth, a case study research design has been adopted and data was collected and analysed from different sources, including: 36 semi-structured interviews, documentation, archival records, and direct observation. The thesis examined the

implementation of six social networking tools that were implemented as part of Musharaka and they include: Collaborative Workspace, Blogs, Wikis, Newsletters, Discussion forums, Members list. Moreover, the study involved embedded social networking tools to the Musharaka framework, such as: tags, RSS and signals.

As a result, there are three major findings that have emerged from this research. Firstly, the use of these particular interactive knowledge management technologies encompassed both the objectivist and practiced-based perspectives. While these two views are radically different and often have been used independently of each other (Hislop, 2005; Hansen et al., 1999), based on this case study, it can be argued that there are significant benefits that can be sought from integrating aspects of both views within a single framework. While much of the intangible knowledge points to the adoption of the practice-based perspective, some crucial knowledge leveraging elements, such as best practices, still need an objectivist perspective. Therefore, there is an actual need for a balanced integration of both perspectives. This is further justified by examining the principles of the knowledge-based view of the firm, and how these principles support an integrated approach to the implementation of information and communications technologies for knowledge management.

The second finding highlights the fact that while the interactive technologies are able to facilitate the sharing of much of the explicit knowledge communicated; it is shown that these technologies are making a positive impact in sharing some tacit knowledge as well. This finding is significant because the knowledge-based view theory emphasises the importance of knowledge sharing to achieve competitive advantage (Grant, 2002). In return, scholars and organisations are constantly striving to find means to facilitate the knowledge sharing process, particularly tacit



knowledge that is valuable but given its nature is difficult to articulate (see chapter 2 and 3).

Finally, the third finding strongly suggests that implementing the interactive knowledge management technologies in organisations is a gradual process and that there are key enabling factors that need to be present for them to prosper in the organisation. This is contrary to what have been identified in the literature, describing these technologies as 'pervasive' and expecting that they will make their way into organisations rapidly (Sinclair, 2007; Martin et al., 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008). As a result of the findings, the key enabling factors were outlined, in addition to the implications on the research and practice of knowledge management were identified.

The thesis is divided into eight chapters. Some necessary theoretical foundations are covered, starting with the knowledge-based view that describes the change in economies and the implications of this change in organisations. Knowledge has been identified as an important resource for organisations to achieve competitive advantage in this economy. Therefore, many organisations are striving to employ knowledge workers and adjust their organisational strategies, structures and processes accordingly (chapter 2). The nature of knowledge and knowledge management concepts, approaches and components are highlighted in chapter three. In addition, a review on the information and communication technologies that support knowledge management processes and knowledge management systems have been conducted chapter four. This review led to examining the latest interactive knowledge management technologies for knowledge management and highlighting prominent research in the area. Chapter five covers the research methodology underlying this research from the choice of research philosophy, case study design;

strategies and methods, in addition to the case selected and background information. The findings from conducting the data collection are presented in chapter six, analysed and discussed in chapter seven. The implications of this thesis on the research and practice of knowledge management, the research limitations and areas for future research are also identified (chapter 7).

## Chapter 2 – The Knowledge-Based View of the Firm

The business environment is getting increasingly complex and challenging (Jashapara, 2011). Factors such as globalisation, the rapid diffusion of new technology and the development and use of knowledge have affected the nature of business and how it is done (Dalkir, 2011). In order to survive and achieve higher levels of performance, organisations must do things differently (Alvesson, 2004). They need to observe new sources of competitive advantage and take part in new forms of competition (Curado and Bontis, 2006). This entails a solid understanding of the nature of competition and competitive dynamics (DeNisi et al., 2003).

The knowledge-based view (KBV) of the firm is a perspective that can allow us to understand competitive dynamics. This perspective argues that knowledge is the most strategically valuable firm resource (Barney et al., 2011; Grant, 2002) and that the diverse knowledge bases and capabilities within firms are the main factors that lead to continuous competitive advantage and overall high performance (Eisenhardt and Santos, 2002).

In this chapter, the knowledge-based view of the firm is explored. Firstly, the origin of the knowledge-based view of the firm is discussed. Secondly, the development of the knowledge-based view is outlined; in addition, the underlying foundation that governs this perspective is elaborated on.

### **Origins of the Knowledge-Based View of the Firm**

The majority of researchers agree that the KBV of the firm is an extension of the resource-based view of the firm (Barney et al., 2011; Grant, 2002; Balogun and Jenkins, 2003; Bontis, 2002; De Carolis, 2002; Sveiby, 2001; Huizing and Bouman, 2002). Penrose (1959) formed the foundations for the resource-based view of the

firm (RBV). Within this view, firms are conceptualised as an administrative organisation (Curado and Bontis, 2006) with a set of productive physical and human resources. It is argued that the physical resources including land and equipment, in addition to, human resources and the way they are combined, is what differentiate one firm from another. In return, allowing a firm to deliver products and services in the market.

The focus of the RBV is on the firm internally, essentially its resources and capabilities as they determine the value of the organisation (Barney, 2011; Curado and Bontis, 2006; Grant, 2002; Makhija, 2003; Penrose, 1980). It is important to define some key terms before proceeding. Resources in this context are defined as 'all assets, capabilities, organisational processes, firm attributes, information, knowledge and etc. controlled by a firm that enable the firm to conceive of an implement strategies that improves its efficiency and effectiveness' (Barney, 1991, p.101). Firm resources are strengths that firms can utilise to consider and apply their strategies. Capabilities are defined as a subset of resources that enable a firm to take a full advantage of other resources for instance cooperative relationships or marketing skills (Barney, 2011). This theory is put into practice to highlight differences in performance within an industry (Hoopes et al., 2003). The RBV of the firm outlines that the differences in performance occur when organisations have valuable resources that other organisations do not have (Curado and Bontis, 2006).

One of the main principles of the RBV is the existence of capability heterogeneity within a population of firms (Curado and Bontis, 2006; Barney, 2011; Helfat and Peteraf, 2003). Organisations are viewed as heterogeneous entities characterised by their particular and distinct resource bases (Marr, 2004; Nelson and Winter, 1982; Barney, 2011). Heterogeneous competition is explained in the RBV based upon the

fact that close competitors differ in a fundamental way in their resources and capabilities (Helfat and Peteraf, 2003). This view acknowledges that the type, scope and nature of resources and capabilities are the main determinants in their capacity to make profit (Curado and Bontis, 2006; Amit and Shoemaker, 1993). From a strategic perspective, the RBV of the firm, views organisations as a bundle of unique capabilities and competencies that influence their development and growth (Barney et al., 2001; Winter, 1987).

The RBV is used to understand competitive dynamics (DeNisi et al., 2003) and from the early 90's, based on Barney's 1991 research, many scholars have approached the firm and its strategy from a resource-based view perspective (Acedo et al., 2006; Armstrong and Shimizu, 2007; Kraaijenbrink et al., 2010; Lockett et al., 2009; Newbert, 2007). In essence, the RBV of the firm forms a strategic line of thought that investigates the organisation's strengths and weaknesses (Curado and Bontis, 2006). The organisational attributes that lead to value creating strategies are the resources. The firm resources are divided to physical, human and organisational (Barney, 2011). Resources can take the form of tangible and intangible resources (Gupta and Roos, 2001; Mathews, 2003). The competitive advantage and organisational economic wealth is built upon the combination of the resources, assets, and capabilities that the firm owns (Curado and Bontis, 2006; Amit and Schoemaker, 1993).

In the RBV of the firm, resources are not restricted to traditional economic productive factors but they also include socially complex resources, for instance: the firm's culture, its reputation with suppliers or clients and interpersonal relationships within firm managers (Barney et al., 2001; Curado and Bontis, 2006). The physical resources may provide returns above average; however, often the intangible

resources are the ones that provide a sustainable competitive advantage (Makhija, 2003). For the intangible resources are established through a distinctive historical sequence and have a socially complex dimension that is often hard for competitors to imitate. The strategic importance of social and behavioural interactions in the implementation of the organisation's strategies is acknowledged in the RBV of the firm (Barney, 2011). Intangible resource can hardly be altered (Teece, 2007) and often these intangible resources take the form of tacit knowledge in organisations (Makhija, 2003).

Barney (2001) identified resources heterogeneity and resources immobility as two important conditions of the RBV of the firm; however they are not enough to acquire sustainable competitive advantage. Barney (2001) classifies firm resources into three categories: physical capital resources, human capital resources and organisational capital resources. Barney (1991) also identified four attributes an organisation's resource should have to provide the potential for competitive advantage, the resources should be: rare, valuable, imitable, non-substitutable. These conditions are widely accepted in the literature and have been explored further (Hoopes et al., 2003; King and Zeithaml, 2003; Wiklund and Shepherd, 2003). In this regard, competitive advantage is not acquired from industry dynamics but from the processes of gathering and utilizing resources within the firm (Roos et al., 2001).

The more it is difficult to buy, sell, imitate or substitute the organisational resources and capabilities, the more their strategic value. Tacit knowledge or/and trust for instance are invisible assets, that cannot be managed easily or duplicated by competitors, as they are embedded in the history of the organisation (Amit and Schoemaker, 1993).

Using the RBV of the firm, researchers can establish a connection between the resources of the firm and its sustained competitive advantage. This view outlined the presence of rivalry between firms that showcase differences in efficiency as a result of resources heterogeneity. The view assumes that the differences in efficiency between firms that are part of the same industry remain due to the difficulty in imitating the resources each firm has (Curado and Bontis, 2006). As a result, systematic variations in performance and profit originate from particular firm factors (Amit and Schoemaker, 1993).

### **From the Resource-Based View to the Knowledge-Based View of the Firm**

An outcome of the RBV of the firm is the development of the Knowledge-Based view (KBV) of the firm (Barney et al., 2011; Grant, 2002; Balogun and Jenkins, 2003; Bontis, 2002; De Carolis, 2002; Roos, 1998; Hoskisson et al., 1999; Sveiby, 2001; Huizing and Bouman, 2002). In this view, knowledge is considered to be the most important strategic resource (De Carolis, 2002). The KBV is aligned with the current economic context (Davenport, 2001; Garud and Kumaraswamy, 2002; Grant, 2002; Mathews, 2003) for in this context, intangible assets are of high value (Grant, 2002; Barney, 2011; Curado and Bontis, 2006; Mathews, 2003).

The theoretical connection between the RBV and KBV is established from the way knowledge is interpreted as a resource (Edwards et al., 2003). The notion of competition based on capabilities and increasing returns was introduced by Penrose (1959) and extended to both the RBV and the KBV (Marr, 2004). Moreover, similar to the RBV, organisations are considered to be heterogeneous entities filled with knowledge in the KBV of the firm (Curado and Bontis, 2006). Increasingly, the

resource base of the organisation is noted to include knowledge-based assets (Svieby, 2001; Marr, 2004). The concept behind the RBV of the firm outlines that unique characteristics of intangible resources (specifically knowledge) should guide the focus of research (Curado and Bontis, 2006; Rouse and Daellenbach, 2002; ). To ensure sustainable competitive advantage, knowledge resources are particularly essential, as they are hard to imitate and are basis for sustainable differentiation (Wiklund and Shepherd, 2003).

One of the reasons for the growing interest in the KBV of the firm is built upon the fact that academia acknowledges the central economic changes that are a result of the accumulation and availability of knowledge in the past two decades (Curado and Bontis, 2006). There is a structural change in the productive paradigm (Curado and Bontis, 2006; Carneiro, 2003) as we are moving away from manufacturing to services in many developed economies (Dalkir, 2011) and the understanding of information and symbols is becoming increasingly important (Alvesson, 2004).

As highlighted in the previous section, the RBV of the firm acknowledges the existence of differences in performance between organisations as a result of resource asymmetries, particularly in relation to knowledge. Therefore, the KBV of the firm stated that organisations are present to create, transfer and transform knowledge into competitive advantage (Curado and Bontis, 2006; Kogut and Zander, 1992). However, transferring knowledge through the organisation can be hard; due to what has been termed 'stickiness' (Szulanski, 2003). The 'stickiness' refers to internal factors that allow the real achievement of competitive advantage, at the same time, it obstructs the adoption of rents from existing knowledge assets (Curado and Bontis, 2006; Szulanski, 2003).



Intangible assets can take two forms the individual (e.g. leadership) and social (e.g. organisational reputation). Both forms have been identified as the foundation for sustainable competitive advantage. Applying a RBV approach, the central capabilities (such as the capabilities to identify and find solutions to organisational problems) are the foundation for the specific competitive advantage of a firm. The existing literature emphasises capabilities and competencies as the basis for the competitive advantage (Curado and Bontis, 2006; Amit and Schoemaker, 1993).

### **The knowledge-based view of the firm**

The change of economy from a material based production to information based production demanded a new set of skills and roles from the firm workers (Alvesson, 2004) and the need for employees to specialise has been identified (Grant, 2002). It is often the case that knowledge workers are at the centre of the organisational functions such as finance, marketing, technology designers and management. In this context, a knowledge worker can be defined as a qualified worker whose main work activities include creating, processing, utilizing and disseminating information (Alvesson, 2004).

Many firms believe that they need to become a knowledge-based organisation to maintain sustainability and competitive advantage in today's economy. However, very few firms comprehend what that means and entails and how to achieve this transformation. A common pitfall which firms often fall in, is their belief that the higher the knowledge content of their products and services, the closer they are to being a knowledge-based organisation (Curado and Bontis, 2006). Zack (2003) uses the metaphor of an iceberg to illustrate this further, with the products and services being only the tip of the iceberg, the visible and tangible aspect represented to their

customers. While what enables the firm to function is actually located underneath the surface of the water, underlined in the hidden intangible assets of the firm and it includes the knowledge of the functions of the firm, how these functions are done and why are they done this way.

The view that organisations are cultural artefacts is in line with the KBV of the firm (Balogun and Jenkins, 2003) for they learn through activities and adapt over time (Curado and Bontis, 2006). The process of organisational learning enables the firm to attain, to change and reserve its organisational capabilities (Yanow, 2000). Culture is often defined as a set of beliefs and assumptions common to and shared by members of an organisation (Balogun and Jenkins, 2003; Nonaka and Takeuchi, 2001). In this sense, organisational culture is the stock of knowledge that is integrated in patterns and steps of actions to take before certain situations (Bontis et al., 2002). It is through organisational routines that knowledge becomes embedded and tacit. A routine involves a behaviour that is learned, repeated, even if only partly, in tacit knowledge (Curado and Bontis, 2006; Winter, 2003).

Nonaka and von Krogh (2009) identified knowledge to be the only true lasting competitive advantage. Blackler (2002) theorized the knowledge-based organisations and McEvily and Chakravarthy (2002), the knowledge-based advantage. These scholars acknowledge that non-observable factors have an influence on firm performance, such as: management capabilities and competencies, tacit organisational routines, technical knowledge. They identify that these factors may be the key determinants of firm performance (Curado and Bontis, 2006).

The literature on strategic management relates competitive advantage in a way that it links firm performance disparity to intangible factors (Curado and Bontis, 2006;

Rouse and Daellenbach, 2002). With the exception of natural resource monopolies, the intangible resources provide potential for competitive advantage, this is due to the intangible resources complex, hard to imitate and rare nature (Hitt et al., 2001). In parallel, there is a literature in knowledge management that relates superior knowledge bases, as a result of organisational learning to superior firm performances (Bontis et al., 2002; Senge, 2006), in addition to highlighting variations in knowledge inventories as the foundation for competitive advantage (Curado and Bontis, 2006; Miller, 2002). A well-established knowledge base is linked with higher strategic flexibility and a rapid response to environmental changes (Curado and Bontis, 2006; Grant, 2002; Umemoto, 2002).

Formal structures are abandoned in knowledge intensive firms and coordination is achieved through internal normative systems and social rewards, as opposed to hierarchical control (Alvesson, 2004). When examining the 'productive process' that transforms knowledge into services, structure and control are the most written about areas (Rylander and Peppard, 2004). The question of autonomy and control has been highlighted frequently in the literature (Curado and Bontis, 2006). Some authors argue that the solution to the question is through applying cultural and normative processes, as opposed to adopting formal hierarchal structure (Rylander and Peppard, 2004; Curado and Bontis, 2006).

Grant (2002) mentions five principles that form the foundation for the knowledge-based view of the firm, firstly, the transferability of knowledge. As per the aforementioned, knowledge is identified as a strategic resource for competitive advantage but for it to be valuable to a firm, it needs to be transferrable. Explicit knowledge tends to be easier to share as opposed to tacit knowledge, which given its nature, is harder to transfer. Transferability is important for external purposes (for

example between firms) and internal purposes (for example between employees). The second underlying principle for the knowledge-based view of the firm is the capacity for aggregation. To ease the difficulties in transferring knowledge, the ability for knowledge to be stored and added to the existing knowledge needs to be facilitated. Having a common language that everyone understands enhances the potential for aggregation. Information and communication technology tools could also facilitate the storing and sharing of knowledge (Hahn and Wang, 2009; Alavi and Leidner, 2001). The third principle that Grant (2002) mention that underlies the knowledge-based view of the firm is appropriability, this refers to the ability for a person to receive equally valuable resource to which was given. Tacit knowledge tends to be harder for people to articulate and therefore learn while explicit knowledge is easier for people to absorb. The fourth principle of the knowledge-based view of the firm is specialisation in knowledge acquisition. Individuals have a limited capacity to acquire, store and process internal and external knowledge. To increase efficient use of knowledge different employees need to specialise in variety of knowledge areas. The final knowledge-based view principle relates to knowledge requirements of production. As it has been established, knowledge is the key input in production of a business and the production involves the transformation of inputs into outputs.

Hence, it can be observed that the knowledge-based view of the firm primary relies on the competence of people, they are considered as the agents of the business that can often lead organisations to profitability (Sveiby, 2001). People create value by transferring and converting knowledge externally and internally to the organisation (Sveiby, 2001). Each time a knowledge transfer or conversion takes place, the value grows (von Krogh and Grand, 2002). Therefore, it is encouraged to adopt strategies

that facilitate knowledge transfer and sharing within and across firms (Powell and Ambrosini, 2012). Moreover, once knowledge is transferred it needs to be managed and stored (Becerra-Fernandez et al., 2004).

There is a general consensus that sustainable competitive advantage in the 21st century is achieved through knowledge management (Halawi et al., 2005; Hahn and Wang, 2009). Large organisations are becoming increasingly alert to the value of knowledge for efficiency and competitiveness (Dalkir, 2011). There is a general acceptance that knowledge and its application is the means by which creativity can be encouraged (Nonaka and Nishiguchi, 2001), innovation supported (von Krogh et al., 2000) and competencies utilised in such a way as to increase organisational performance. Knowledge management is a comprehensive strategy of providing the right knowledge to the right people in timely manner (Halawi et al., 2005). It enables employees to share and act on the information received in a way that will enhance organisational performance (van Ewyk, 2000). Knowledge management can be viewed as a conscious design of processes, structures, tools in order to increase, renew, share or improve the use of knowledge. The overall purpose of knowledge management is to leverage organisation's intellectual assets to sustain competitive advantage. The next chapter defines knowledge, knowledge management and identifies the strategies, components and processes that are involved.

## **Chapter 3- Nature of Knowledge and Knowledge Management in Theory and Practice**

In the previous chapter, the knowledge-based view of the firm that provides a theoretical framework of this study was explored. Knowledge has been identified as one of the key resources for firms seeking sustainable competitive advantage (Curado and Bontis, 2006; DeNisi et al., 2003; Grant, 2002).

This chapter examines the foundations of knowledge and introduces the concept of knowledge management. Firstly, the alternative views of knowledge are explored and the different types of knowledge are discussed. Secondly, the term knowledge management is introduced and the driving factors for knowledge management are highlighted. Thirdly, knowledge management strategies are examined, in addition to the knowledge management processes and cycle. The knowledge management infrastructure is then presented and the different knowledge management maturity models are explored. Finally, a review on knowledge management current status, limitations and challenges is presented.

### **Alternative Views of Knowledge**

The existing literature on the nature of knowledge is mostly based upon the views of two authors, Ryle (1949) and Polanyi (1967). Burrell and Morgan's (1979) expanded on these views by developing a framework of which the epistemological positions are identified. The four main philosophical positions are: positivism, constructivism, postmodernism and critical realism. Each of these epistemological positions has underlying assumptions of knowledge and how it is viewed and they can be categorised under subjective or objective paradigms.

Through interactions with individuals, the subjective views reality as socially constructed (Beccerra-Becerra-Fernandez et al., 2004; Schultze and Stabell, 2004). Knowledge is looked at as an on-going accomplishment, which is constantly affected by social practices (Boland and Tenkasi, 1995). Therefore, knowledge cannot be pinned down to a certain location, for it does not exist independent of human experiences and social practices (Becerra-Fernandez et al., 2004). Branching from the subjective view is two perspectives (Becerra-Fernandez et al., 2004), the *state of mind* and *practice*. The first perspective considers knowledge as a state of an individual's mind (Becerra-Fernandez et al., 2004). The beliefs of the individuals within the organisation are viewed as the organisational knowledge. In addition, since individuals have different experiences and come from diverse backgrounds, their beliefs, and therefore knowledge, could differ from one another. As a result, the emphasis is on empowering individuals to develop their personal areas of knowledge in order to apply them to best pursue organisational goals (Alavi and Leidner, 2001).

The second perspective of the subjective view is, knowledge as *practice*, whilst knowledge is still viewed subjectively, it is possessed by a group and not broken down into components held by individuals (Becerra-Fernandez et al., 2004). Therefore, from knowledge as practice view, knowledge is "neither possessed by any one agent, nor contained in any other repository" (Schultze, 1999, p.10). In addition, knowledge lives not in any individual but in practice. Knowledge consists of beliefs; however the beliefs are combined as opposed to individual and in return are more revealed in organisational activities instead of the minds of organisational individuals. Knowledge is "inherently indeterminate and continually emerging" (Tsoukas, 1996, p.22).

In contrast to the subjective stance, the objective perspective views reality as independent of human perceptions and can be structured in terms of *a priori* categories and concepts (Becerra-Fernandez et al., 2004; Schultze and Stabell, 2004). Therefore, knowledge is treated as an object or a capability that can be found and enhanced upon by human agents (Becerra-Fernandez et al., 2004). There are three different perspectives that fall under the objective view, the *knowledge as objects*, *knowledge as access to information* and *knowledge as capability*. Knowledge as objects views knowledge as a commodity that can be saved, shared and influenced (Becerra-Fernandez et al., 2004). In line with the meaning given to knowledge as a predefined collection of justified beliefs, these knowledge objects (i.e. beliefs) can reside in different locations and can be of different types (Becerra-Fernandez et al., 2004). The second objective perspective, views knowledge as the conditions of access to information (Becerra-Fernandez et al., 2004; Alavi and Leidner, 2001). Hence, knowledge is looked at as allowing contact and use of information. The third perspective, is in line with the previous two perspectives, nonetheless, this perspective is unique in that it is centralised around the ways in which knowledge can be applied to influence action. Knowledge is viewed as a strategic capability that can implement to achieve competitive advantage.

Furthermore, in an attempt to capture different knowledge management taxonomies, Kakabadse et al. (2003) identified five different models: *the philosophical based model*, *cognitive model*, *network model*, *community model* and *quantum model*. The philosophical based model views knowledge as a 'justified true belief' and is epistemologically driven (Kakabadse et al., 2003, p.75). The focus is on the ways of knowing and the main objective is emancipation. This model relies on reflecting,



questioning and debating as a practice to produce new knowledge (Murray, 2000). Information Technology tools almost have no role in this model.

The second model identified by Kakabadse et al. (2003) is the cognitive model and it views knowledge as an object that can be codified to represent facts. Metaphorically it resembles a 'memory' in which knowledge is obtained and retained. The main objective is to capture knowledge and codify it mainly using technology as a tool. Knowledge is often standardized and retained from being used over and over again.

The third model identified is referred to as a network model and knowledge under this model is treated as "external to the adopter in explicit and implicit forms" (Kakabadse et al. 2003, p.81). The focus is on searching all that is new externally to gain knowledge that will provide a competitive advantage. Technology plays a complimentary role under this model.

The community model develops a more socially constructed stance towards viewing knowledge, under the belief that knowledge is based on experience. It involves creating, applying knowledge to encourage knowledge sharing and putting the new knowledge gained from this process into practice. This model is based on and values commitment and trust whilst technology does play a supporting role.

Finally the Quantum model treats knowledge as 'system of possibilities' (Kakabadse et al. 2003, p.81). The idea behind this model is to solve complex issues to achieve multiple realities and learning systems. Technology is a key player and critical in this domain.

Similarly to how Burrell and Morgan (1979) argue that there are two broad perspectives in the social sciences in relation to epistemology: the positivist and anti-

positivist, Hislop (2005) identified two broad epistemological groups in the contemporary debate on the nature of knowledge, these two, perhaps competing perspectives are the *objectivist perspective* and the *practice-based perspective*. These two perspectives have been referred to in different ways by various authors (see table 1).

**Table 1: Competing epistemologies (Hislop, 2005, p.14)**

Author	Objectivist Perspective	Practice-Based Perspective
Werr and Stjernberg (2003)	Knowledge as theory	Knowledge as practice
Empson (2001)	Knowledge as an asset	Knowledge as a process
Cook and Brown (1999)	Epistemology of possession	Epistemology of practice
McAdam and McCreedy (2000)	Knowledge as truth	Knowledge as socially constructed
Scarbough (1998)	'Content' theory of knowledge	'Relational' view of knowledge

The objectivist perspective in this case is based on the positivism philosophy, in which knowledge is treated as an entity, with objective facts (McAdam and McCreedy, 2000) for this reason it is referred to as the 'epistemology of possession' (Cook and Brown, 1999) and knowledge can be viewed as 'truth' (McAdam and McCreedy, 2000). This perspective, values the objective knowledge (explicit) over subjective (tacit) and there is an understanding that knowledge is derived from an intellectual process (Cook and Brown, 1999). Tacit and explicit knowledge are defined next. The practice-based perspective, on the other hand, is aligned to different philosophical perspectives as opposed to the objectivist perspective, which is aligned to the positivism philosophy (see table 2).

**Table 2: Theoretical perspective related to the practice-based perspective - Source: Hislop (2005, p.28)**

Author	Theoretical Perspective
Empson (2001)	Interpretive

<b>Blackler (1995)</b>	Activity Theory
<b>Tsoukas (1996)</b>	Ethnomethodology/ Interpretive Philosophy
<b>Cook and Brown (1999)</b>	American Pragmatists
<b>Lave and Wenger (1991)</b>	Situated Learning Theory
<b>Sayer (1992)</b>	Critical Realism
<b>Suchman (2003)</b>	Actor Network Theory

In contrast to the objectivist perspective, is the practice-based perspective in which knowledge is seen as embedded in practice and for that it is called the ‘epistemology of practice’ (Cook and Brown, 1999). For human activity is considered central to the conception of knowledge (Hislop, 2005; Gherardi, 2000; Patriotta, 2003). Moreover, there is a belief that knowledge is embodied in people (Tsoukas, 1996; Hislop, 2005); it is culturally embedded and constructed (Tsoukas, 1996; Boland and Tenkasi, 1995). Consequently, given the different assumptions of each of these perspectives, knowledge is managed and shared differently in each. This will be elaborated on in further sections.

In this section the alternative views of knowledge have been explored, the next section identifies the different types of knowledge that scholars have written about.

## **Different Types of Knowledge**

Throughout the knowledge literature, knowledge has been categorised in many different ways. Herein, the main categories are explained and discussed.

### **Declarative or Procedural Knowledge**

The first classification is the one between procedural and declarative or as it is also called substantive knowledge (Banks and Millward, 2007; Kogut and Zander, 1992). Declarative knowledge is centralized on beliefs about relationships among variables (Becerra-Fernandez et al., 2004). For instance, the increase in the price of products

will cause some decrease in the number of sales. It can be identified in the type of expected correlations, propositions or formulas presented as variables.

In contrast, procedural knowledge revolves around beliefs relating sequences of steps or actions to desired outcomes (Banks and Millward, 2007). For instance a predefined collection of justified beliefs about the procedures that needs to be undertaken in a government organisation to decide who to hire for a certain area (for e.g. marketing). In summary, declarative knowledge is categorised as 'know what' whilst procedural knowledge is categorised as the 'know how' Becerra-Fernandez et al., 2004.

### **Explicit or Tacit Knowledge**

The second major classification of knowledge in the knowledge management literature is that of tacit or explicit (Nonaka and Von Krogh, 2009; Collins, 2010). This is also derived from the work of the philosophers Gilbert Ryles (1949) and Michael Polanyi (1967). Ryle (1949) made the distinction between 'knowing what' (explicit) and 'knowing how' (tacit). Explicit knowledge relates to the knowledge that can be conveyed in numbers and words, one that is documented and that can be shared in the form of manuals, data, audio, video and etc. (Kothari et al., 2012).

Tacit knowledge, in contrast, refers to intuitions, insights and hunches. Polanyi (1967, p.32), described it as 'we know more than we can tell' as this type of knowledge is hard to convey and express, and hence hard to transfer (Ambrosini and Bowman, 2001; Powell and Ambrosini, 2012). The nature of the knowledge tends to be personal and based on individual experiences and activities (Kothari et al., 2012). Given the characteristics mentioned above, it is argued that tacit knowledge could be a source of competitive advantage (Dalkir, 2011; Taylor, 2007) for it is unique, hard to articulate, transfer and imitate (Bowman and Ambrosini, 2003).

This will be elaborated on in the Knowledge Management Strategy section. Table 3 summarizes the major properties of tacit vs. explicit knowledge.

**Table 3: Comparison of Properties of Tacit Vs. Explicit Knowledge (Source: Dalkir. 2011, p.8)**

Properties of Tacit Knowledge	Properties of Explicit Knowledge
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, to reproduce, to access, and to reapply through the organisation
Expertise, know-how, know-why, and care-why	Ability to teach, to train
Ability to collaborate, to share a vision, to transmit a culture	Ability to organise, to systematize, to translate a vision into a mission statement, into operational guidelines
Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis	Transfer of knowledge via products, services, and documented processes

Polanyi (1967), argues that these two types of knowledge are not separate entities but exist along a continuum (Jashapara, 2011). Nonaka and von Krogh (2009) took this further by arguing although explicit and tacit knowledge are different forms of knowledge; it is possible to convert explicit knowledge to tacit and vice versa. This will be elaborated on in the ‘Knowledge Management Cycle and the Knowledge Spiral’.

#### **General or Specific Knowledge**

Finally, knowledge is also classified on the basis of whether it’s possessed widely or narrowly (Becerra-Fernandez et al., 2004). General knowledge is acquired by many individuals and can be smoothly shared between individuals. For instance, the rules of a football game may be considered as general knowledge (Becerra-Fernandez et

al., 2004). The example of general knowledge in this context is showing a red card to a player means he is expelled from the match.

In contrast with general knowledge, is specific knowledge that is acquired by a small number of individuals, and therefore may be costly to transfer (Martin and Salomon, 2003; Jensen and Meckling, 1995). There are two types of specific knowledge, technically specific knowledge and contextually specific knowledge (Becerra-Fernandez et al., 2004). The technically specific knowledge is defined as in depth knowledge on a specific area, the techniques and tools that may be utilised to solve problems in this field. This type of knowledge is usually learnt from of an official training and is then improved upon by experience and practice in the area. An example is the knowledge about the hardware component of a computer acquired by a computer engineer (Becerra-Fernandez et al., 2004).

The second type of specific knowledge is contextually specific knowledge that is based on Hayek (1945) work. It relates to the knowledge of certain circumstances of place and time that work is to be completed. It is relevant to the organisation and the organisational department within which tasks are achieved (Becerra-Fernandez et al., 2004). In contrast with technically specific knowledge, contextually specific knowledge cannot be absorbed through official training but instead it must be acquired from within the specific context for example as membership in the same baseball team (Becerra-Fernandez et al., 2004).

The aforementioned have covered the major types of knowledge identified in the literature; the next section introduces the term knowledge management, identifies the drivers for knowledge management in organisations, knowledge management

strategies, processes and infrastructure. Finally, the current status of knowledge management, limitations and challenges will be explored.

### **Introducing Knowledge Management**

Knowledge management is a relatively emerging, young, discipline in this post-industrial economy and it has roots in a number of different disciplines (Jashapara, 2011). There are two most common dimensions found in the literature: one which is strongly information systems oriented, implying that it is little more than information management (Mertins et al., 2000) and the other dimension is more people-oriented emphasizing the role of people in knowledge creation and sharing, hence making the subject more human resource management (Skyrme, 1999; Swan, et al. 1999). There is no or little crossover between these two dimensions, each party fails to recognise that the language and assumptions of each discipline vary significantly (Jashapara, 2011).

In addition to these two main dimensions, there are some additional perspectives within the knowledge management literature, spanning from strategy (Newell et al., 2009; uit Beijerse, 2000) to cultural management. Therefore, it is natural that there is little consistency between these offerings as many authors relate the subject to their singular discipline perspective. However, the strength and challenge of knowledge management as an emerging discipline comes from its interdisciplinary approach. The real synergies in knowledge management are likely to occur from boundary-spanning individuals who can see beyond the narrow margins of their own disciplines and recognise the value of dialogue and debate with other disciplines (Jashapara, 2011).

Due to the multidisciplinary nature of knowledge management, the variety of current definitions comes from a number of different perspectives. For example Mertins et al. (2000, p.22), taking an *information systems perspective* defines knowledge management as "All methods, instruments, and tools that in a holistic approach contribute to the promotion of core knowledge processes."

In contrast, Swan et al. (1999, p.42), takes a human resource perspective, defining knowledge management as "any process or practice of creating, acquiring, capturing, sharing, and using knowledge, wherever it resides, to enhance learning and performance in organisations". Skyrme (1999, p.91), also takes a human resource perspective, defining knowledge management as "the explicit and systematic management of vital knowledge and its associated process of creating, gathering, organizing, diffusion, use and exploitation, in pursuit of organisational objectives".

Increasingly authors take a strategy perspective, recognizing knowledge management practices for gaining competitive advantage. For instance Newell et al. (2009, p.81), define knowledge management as "improving the ways in which firms facing highly turbulent environments can mobilize their knowledge base (or leverage their knowledge 'assets') in order to ensure continuous innovation". uit Beijerse (2000, p.52), also take a strategy perspective, defining knowledge management as "the achievement of the organisation's goals by making the factor knowledge productive".

It is clear that any advancement in the knowledge management field need to adopt an integrated, interdisciplinary and strategic approach (Jashapara, 2011). Davenport and Prusak (2000, p.11) adopt an integrated approach, including information



systems and human resources, they state "Knowledge management draws from existing resources that your organisation may already have in place – good information systems management, organisational change management, and human resources management practices"

From a strategy perspective, scholars seek knowledge management activities that increase intellectual capital and improve organisational performance (Newell et al., 2009). Moreover, through different learning processes, there is a human dimension to developing knowledge amongst individuals, groups and organisations. As knowledge is created, the fundamental challenge in this field remains in the sharing of this knowledge (Kothari et al., 2012; Jashapara, 2011; Ali et al., 2012; Powell and Ambrosini, 2012). Individuals require support in exploring and exploiting tacit and explicit knowledge (Kothari et al., 2012; Jashapara, 2011; Ali et al., 2012) comprehensively. There are various tools, techniques, systems and technologies (see next chapter) that attempt to facilitate this process of knowledge creation, capture, organisation, evaluation, storage and sharing (Becerra-Fernandez et al., 2004; Alavi and Leidner, 2001). Nonetheless, knowledge management systems and organisational processes are not enough to achieve success. Various knowledge management initiatives failed due to negligence of cultural and change management factors that are key to successful adoption (Hislop, 2005). Jashapara (2011, p.14), combined all these different dimensions into an integrated knowledge management definition, from an interdisciplinary perspective, as 'the effective learning processes associated with exploration, exploitation and sharing of human knowledge (tacit and explicit) that use appropriate technology and cultural environments to enhance an organisation's intellectual capital and performance.'

This integrated definition will be adopted henceforth for the purpose of this research. The next section outlines the key drivers for the rise of knowledge management.

## **Forces Driving Knowledge Management**

Many authors have addressed the issue of major drivers behind today's increased interest in and application of knowledge management and they more or less identify the same drivers (Beamish et al. 2001; Fernandez, 2004; Dalkir, 2011). The first driver identified in the literature (Fernandez, 2004; Dalkir, 2011) is the globalization of business. There is a substantial increase in international commerce. The products that were made within one company or country are now collated from parts from multiple sources worldwide. While in the past there were limited product alternatives, nowadays there are many. Frequently, production and service capabilities that were available from a few sources in developed countries are being found in countries that were regarded as developing and unqualified to conduct sophisticated work. This resulted in intensive competition and for firms to survive; they needed to be effective in the creation of products and services, operations and marketing. Hence, there is an interest in knowledge management to facilitate this process of products and services creation, streamlining operations and marketing.

The second driver for the interest in knowledge management is the move towards leaner organisations and the challenge of delivering better, quicker and in time (Dalkir, 2011). Thirdly, the need for highly skilled labour and this point relates the one before in which in order to deliver high quality products efficiently and effectively, there is a need for competent, empowered, knowledge workers (Alvesson, 2004). Fourth, is the high turnover of employees and mobility of workforce, if the knowledge created is not retained, organisations risk the knowledge being lost, hence

organisations need to take precautionary measures to ensure knowledge continuity. Lastly, the advancements in technologies and their far-reaching effects is one of the drivers for knowledge management (Blackler, 2002). Technology helps organisations keep connected in real time, organisations are expected to be highly responsive in which the response time is not measured in weeks or days nowadays, it is measured in minutes.

Hence, it is observed with the increase in domain complexity, market volatility and pace of change, organisations are challenged to keep up with this change, take rapid decisions, adjust and adapt, intensify speed of responsiveness otherwise they risk being run over by other competitors (Jashapara, 2011; Dalkir, 2011). Therefore, organisations are striving to adopt strategies to create and manage the knowledge they have. This will be explored in the next section 'Developing a knowledge management strategy'.

### **Developing a knowledge management strategy**

Given that today's industry is increasingly relying on intellectual assets, one of the most important assets an organisation possesses is its knowledge (Grant, 2002). It is assumed that knowledge in its tacit and explicit form can be managed (Jashapara, 2011) and that the effective use of knowledge will provide the organisation with a sustainable competitive advantage (Halawi et al., 2005; Grant, 2002).

The forms of strategy in the knowledge management literature range between achieving efficiency or innovation (Mintzberg et al., 2008; Alwis et al., 2008). It is argued that to achieve sustainability, organisations are constantly striving in one or another direction towards innovation or efficiency, depending on market conditions (Nielsen and Michailova, 2007; Hansen et al. 1999). Deregulations of markets,

aggressive competitor action and economic downturns lead to discontinuities and a huge loss of market share (Jashapara, 2011). In case of such a discontinuity or crisis, an organisation will most likely shift focus from one from to another, for instance efficiency to innovation.

The two most common knowledge management strategies adopted in organisations are codification and personalization strategies (Hansen et al., 1999). The codification strategy is heavily technology-led with minimum emphasis on people. The focus is on acquiring a large database to codify and store knowledge. Within this strategy, explicit knowledge is considered and knowledge is viewed as an 'object', for instance: after implementing a project, key pieces of knowledge will be extracted and stored in a repository for others to refer to and re-use. Therefore, codification strategies are often adopted by organisations focussing on efficiency as a business strategy.

On the other hand, there is the personalization strategy that is in contrast with the codification strategy as it is driven by people (Hansen et al., 1999). The focus is more on bringing people together through brainstorming activities and communication and collective problem solving. As a result, there is a strong emphasis on tacit knowledge sharing and facilitating contact and networking (Hansen et al., 1999). Stover (2004) identifies that the prerequisite for tacit knowledge development is by adopting an open culture that supports innovation and interaction with others. Establishing personal contact with external and internal actors is important for the development of tacit knowledge in organisations (Sveiby, 2001). Baumard (1999) identifies three characteristics that are common to organisations successful in capturing the tacit knowledge of their employees. First, resolving vagueness and ambiguity through communities of practice. Second, the

capability of organisations in establishing informal matrices of relationships, and finally, the reliance of organisations on collective knowledge.

With the personalization strategy, knowledge sharing is mediated in various forms: face-to-face, phone, video-conferencing or/and knowledge management technologies that enable the location of expertise and the right set of skills such as expertise databases or internal 'yellow pages' (Jashapara, 2011). The emphasis is on enabling dialogue, networking and conversations to find collective solutions to unique problems encountered while conducting work tasks. Central to this approach is knowledge sharing, mentoring, and the utilisation of creative and analytical skills (Jashapara, 2011). Therefore, personalization strategies are often adopted by organisations differentiating themselves by providing innovative solutions.

In summary, organisations adopting codification strategies invest highly in knowledge databases and advanced search engines whilst incentivizing employees to codify and store their knowledge in these databases. On the other hand, organisations adopting personalization strategies invest less on technology, using low level technology, for example: expert databases whilst highly rewarding employees for knowledge sharing and networking with their peers. It has been argued that organisations that try to apply both strategies at the same time are deemed to fail (Hansen et al., 1999; Mintzberg et al., 1991; Nielsen and Michailova, 2007), as when two different forces (efficiency and innovation) collide in one setting, it can be paralysing to the organisation. Nonetheless, more recent studies demonstrate how both strategies can co-exist in one organisation and result in achieving high competitive advantage (Powell and Ambrosini, 2012; Grundstein, 2013). This will be examined further in the 'Discussions' chapter.

Other authors (Dotsika and Patrick, 2006; Jashapara, 2011) use the 'push' and 'pull' analogy to describe knowledge management strategy. It has been suggested that for an organisation to manage knowledge successfully, it needs to convert implicit knowledge into explicit knowledge in order to distribute it to the right channels (Nonaka and Von Krogh, 2009). One of the used knowledge management strategies is the 'push strategy' (Dotsika and Patrick, 2006), where individuals within the organisation transfer, and retrieve knowledge from a shared data repository, such as a database or a directory of some sort. Another used strategy is known as the 'pull strategy' (Dotsika and Patrick, 2006). This approach involves individuals within an organisation making knowledge requests of experts within a certain subject area, on an ad-hoc basis.

It is argued that in the past organisations incorporated online corporate yellow pages as a tool to find experts in specific areas and document management systems. With the advent of IBM's Lotus Notes and other collaborative technologies in the late '90's, knowledge management technologies expanded beyond business directories and document management (Dotsika and Patrick, 2006). This followed more of the pull strategy for knowledge management. In recent times, with the evolution of the web and the development of social computing tools (e.g. blogs) a more amorphous, self-governing approach to the creation, capture and transfer of knowledge is being observed (Naeve, 2005). Accordingly, these tools and advancements implied gravitating more towards the pull strategy of knowledge management (Paroutis and Saleh, 2009). As with any new technology, one needs to be careful of wholesale adoption as each organisation has unique needs, and any strategies should be fine-tuned to meet those needs. This will be discussed further in the findings section. The

next section explores the knowledge management processes and knowledge spiral model.

## **Knowledge Management Cycle and the Knowledge Spiral Model**

For knowledge management to be effective, organisations need to identify, create, obtain, disseminate, and capture the benefits of knowledge that provide it with strategic advantage (Dalkir, 2011). Information is not the same as knowledge (Davenport and Prusak, 2000; Jashapara, 2011); there is a clear distinction between the two: information is digitizable and true knowledge assets often reside in the mind of people, and not the organisation. A knowledge management cycle or process is the route information residing in the human knower takes in order to become a valuable strategic asset for the organisation (McElroy, 2003).

There are various knowledge management cycles described in the literature (Becerra-Fernandez et al., 2004; Jashapara, 2011; Bukowitz and Williams, 2000; McElroy, 2003), nonetheless, upon a closer observation they all include similar processes but use different terms for these processes. The knowledge cycle model that will be described in this research will be the Fernandez, Gonzalez and Sabherwal (2004) model as it is comprehensive with respect to the different types of steps found in the knowledge management literature and a detailed description of the knowledge management process is involved in each step.

As per the aforementioned, knowledge management is reliant on four main kind of knowledge management processes, these include the process in which knowledge is discovered or captured and then the process in which knowledge is shared and applied (see figure 1).

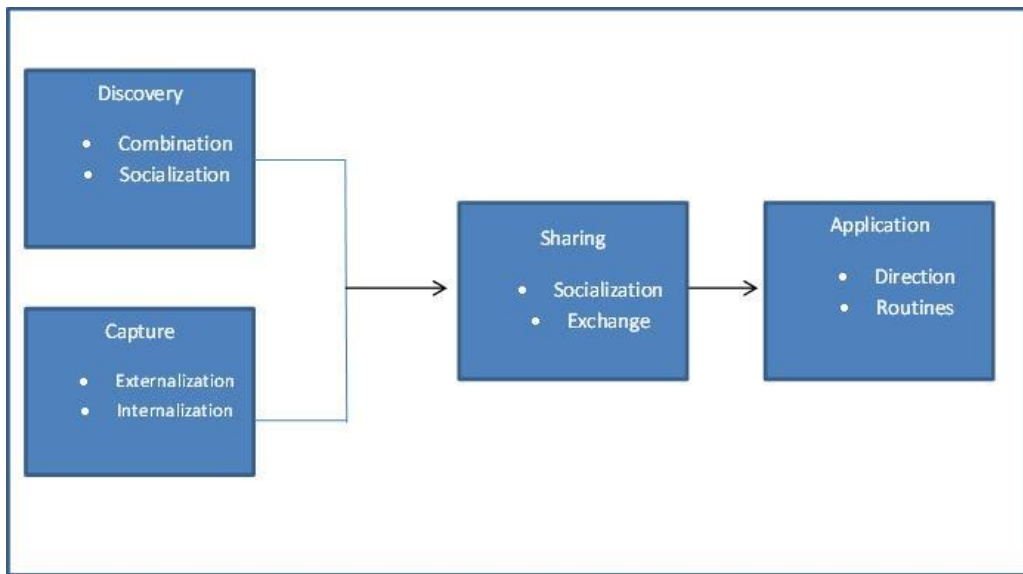


Figure 1: Knowledge Management Processes (Fernandez et al., 2004, p.32)

In the model developed by Fernandez, Gonzalez and Sabherwal (2004), these four processes have seven sub-processes. Four of these sub-processes are inspired by Nonaka (1994) knowledge spiral (Socialisation, Externalisation, Internalisation and Combination), with an emphasis on the way in which knowledge is transformed through the interaction between tacit and explicit knowledge (see figure 2). The remaining three sub-processes (exchange, direction and routines), are based on the work of Grant (2002) and Nahapiet and Ghoshal (1998).

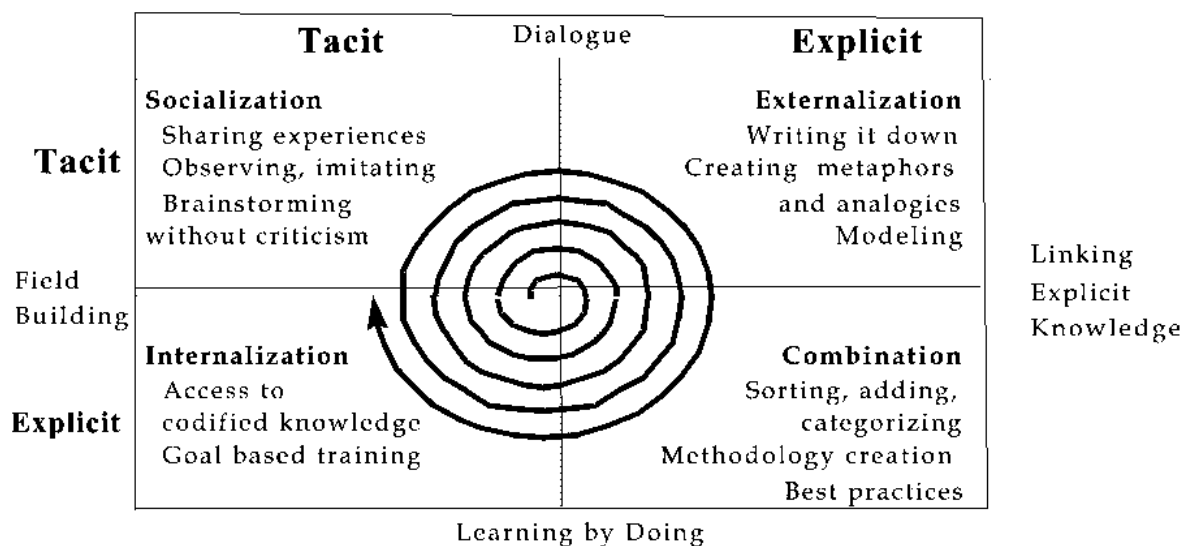


Figure 2: Knowledge Spiral Model (Source: Nonaka and Takeuchi 1995, p.36)



**Knowledge Discovery**

This process relates to the development of new tacit or explicit knowledge from data and information or from bringing together former knowledge (Becerra-Fernandez et al., 2004). Through combination, new explicit knowledge is discovered in which multiple bodies of explicit knowledge are brought together to develop new, more complex set of explicit knowledge (Nonaka, 1994). New explicit knowledge is created gradually or drastically by utilising practices such as communication, incorporation and systemisation of a number channels of explicit knowledge (Nahapiet and Ghoshal, 1998). Existing explicit knowledge, data and information are re-contextualised and reformed to produce new explicit knowledge (Becerra-Fernandez et al., 2004). For instance when coming up with a new proposal for a client, explicit data and information incorporated in previous proposals may be combined into a new proposal (Becerra-Fernandez et al., 2004).

With regards to tacit knowledge, the bringing together of a number of channels for the development of new knowledge happens through socialisation (Nonaka, 1994). Socialisation refers to the practice of bringing together individuals' tacit knowledge, often through shared activities instead of verbal and written instructions. For instance, Davenport and Prusak (2000), illustrates how conversations near the water coolers at IBM enabled knowledge sharing amongst employees.

**Knowledge Capture**

Knowledge is located within people, artefacts and organisational entities and it can take explicit or tacit forms. Knowledge may be located in an individual's mind, without the individual being aware of it in order to share it. Alternatively, knowledge may be located in an explicit form, for example in a manual however a few people may be aware of it (Becerra-Fernandez et al., 2004). It is crucial to acquire the tacit knowledge residing in the individual's minds in addition to the explicit knowledge

from the manual; in return knowledge can be transferred to others (Becerra-Fernandez et al., 2004). This process of acquiring either tacit or explicit knowledge that is located in the minds of people, artefacts or organisational entities is called the knowledge capture process (Becerra-Fernandez et al., 2004).

The knowledge captured might also be located outside organisational boundaries for instance, suppliers, consultants, customers and previous employers of the organisation's new employees (Becerra-Fernandez et al., 2004; Sveiby, 2001). There are two knowledge management sub-processes that allow the process of capturing knowledge. These two sub-processes are identified by Nonaka (1994), and they assist in capturing tacit and explicit knowledge. The first one is externalisation, this relates to transforming tacit knowledge into an explicit form such as visuals, words, concepts or figurative language through the use of metaphors, analogies and narratives (Nonaka and Takeuchi, 2001). Externalisation also enables the translation of an individual's tacit knowledge into explicit knowledge that is clearer and easier to understand by the rest of the team. Due to the fact that tacit knowledge is not easy to articulate, this is a difficult process (Grant, 2002). For instance, externalisation may involve, a team of consultants, writing the lessons they learned working with the client organisation that could then be of a use for the team. In return, capturing the tacit knowledge acquired by the team members.

The second sub-process is internalisation, which refers to transforming explicit knowledge into tacit knowledge. This sub-process relates to the notion of learning, for the explicit knowledge is applied in practice and action (Becerra-Fernandez et al., 2004). Moreover, individuals may obtain tacit knowledge in virtual situations literally by going through manuals or other stories (Becerra-Fernandez et al., 2004; Nonaka and Takeuchi, 2001). For instance, new service consultants may read a book on

providing the best client service and learn from it. This way the knowledge they learned by reading the book is captured within themselves and their organisations.

### **Knowledge Sharing**

The third knowledge management process is referred to as knowledge sharing and it involves the communication of tacit or explicit knowledge to other individuals (Becerra-Fernandez et al., 2004). There are three clarifications that Fernandez et al. (2004) established, firstly, there is an emphasis on *effective transfer*, i.e. the receiver of knowledge is able to comprehend it (the knowledge) well enough to act on it (Sveiby, 2001; Jensen and Meckling, 1995). Secondly, the aspect that is shared is knowledge itself not recommendations based on the knowledge. This point is crucial since the former entails the receiver obtaining the knowledge, understanding it and acting on it whilst the latter just involves that use of knowledge without the receiver internalising the shared knowledge (Sveiby, 2001). Thirdly, knowledge sharing is not limited to individuals, it may occur at a group, departmental or organisational level (Alavi and Leidner, 2001).

In cases where knowledge is located in a place that is different from where it is needed, either knowledge sharing or knowledge utilisation without sharing is necessary (elaborated on in the next sub-section). Knowledge sharing is an important process in ensuring innovation and high performance levels in organisations. For example, Jack Welsh, General Electric CEO, ensured knowledge sharing was amongst the three business processes that the company highlighted (Stewart, 2000). Knowledge utilisation will be discussed in the next sub-section.

Knowledge sharing incorporates two sub-processes, socialisation (which was covered in the earlier section) and exchange. Which one of these two sub-processes is used depends on whether explicit or tacit knowledge is transferred. Tacit

knowledge sharing is facilitated through the socialisation sub-process in both cases, when new tacit knowledge is created and when tacit knowledge is not created. Exchange sub-processes however, enables the sharing of explicit knowledge. It facilitates the communication and transformation of explicit knowledge amongst individuals, groups, and organisations (Grant, 2002). Naturally, the process of exchange of explicit knowledge is the same as the processes in which information is communicated. For instance, a product design manual given from one employee to the other, who can then utilise the explicit knowledge embedded in the manual (Becerra-Fernandez et al., 2004).

#### Knowledge Application

The last of the knowledge management processes is referred to as knowledge application or utilisation (Becerra-Fernandez et al., 2004). In this process, the knowledge that has been discovered, captured and stored is used to make decisions and perform tasks, in return contributing to organisational performance. Hence, the more effective the process of knowledge discovery, capture and storage, the more effective the decision-making process for the knowledge needed to make the decision is available for the key players.

When applying knowledge, the parties that make use of it do not really need to understand it (Becerra-Fernandez et al., 2004). What is needed is that somehow the knowledge is used to inform decisions and actions (Becerra-Fernandez et al., 2004). Hence, there are two sub-processes (direction and routines) that knowledge utilisation benefits from that do not entail the actual exchange of knowledge between the related individuals (Becerra-Fernandez et al., 2004; Grant, 2002). Direction could be defined as the process by which individuals who hold the knowledge direct the action of other individuals (Grant, 2002). The knowledge underlying the direction

does not need to be transferred to these individuals. This way, the advantages of specialisation are maintained, in addition to avoiding the obstacles encountered in the transfer of tacit knowledge (Sveiby, 2001). For instance, an example of direction is a production worker reaching out to an expert to solve a problem with a machine, the expert provides the production worker with guidelines to fix the problem. The production worker follows the instructions given by expert to fix the problem. In case a similar problem comes up in the future, the production worker will have to call the expert again as he won't be able to identify it as such. Hence, in contrast to the process of socialisation and exchange that have been mentioned earlier, this process does not involve the internalisation of knowledge by the other person.

The second sub-process is referred to as routines (Becerra-Fernandez et al., 2004), which entails the use of knowledge that is contained in procedures, rules and norms to steer future behaviour (Grant, 2002). In terms of communication and compared to direction, routines economise on communication for they are contained in procedures and technologies (Grant, 2002).

The aforementioned forms the basis of knowledge processes and the knowledge spiral model. The next section highlights the five main components that form the knowledge management infrastructure.

### **Knowledge Management Infrastructure**

This forms the basis on which knowledge management resides and consists of five main entities including: organisational culture, organisation structure, information technology infrastructure, communities of practice and common knowledge (Becerra-Fernandez et al., 2004).

### **Organisational Culture**

In every organisation, the behaviour of employees is guided by a set of norms and beliefs, which are referred to as organisational culture (Alvesson, 2012; Dalkir, 2011). Establishing the adequate organisational culture is increasingly being identified as one of the main challenges in implementing knowledge management initiatives (Alavi et al., 2005). A study conducted by Dyer and McDonough (2001), identifies four main challenges in knowledge management, firstly being that the employees in an organisation do not have time for knowledge management. Secondly, the already existing culture does not support knowledge sharing. Thirdly, the lack of awareness into knowledge management and the advantages it provides to an organisation and finally, the incapability of measuring the financial return from knowledge management. The second challenge directly related to organisational culture. It can also be argued that points one and three also relate to organisational culture for a supporting organisational culture aids in encouraging employees to understand the value that can be obtained from knowledge management and in return makes time for it (Dyer and McDonough, 2001). Indeed, encouraging employees to share their knowledge is considered one of the hardest parts of knowledge management (Koudsi, 2000). In an interview with Carla O'Dell, president of the American Productivity and Quality Centre, Koudsi (2000), found out that of the organisations trying to incorporate knowledge management, only 10% have succeeded in including it as part of their culture (Becerra-Fernandez et al., 2004). It is difficult to get people to participate in knowledge sharing; nonetheless it is one of the crucial parts of knowledge management.

Armbrecht et al. (2001) discuss attributes that facilitate organisational culture such as understanding the value of knowledge management practices, incentives and

rewards for knowledge sharing, support of interaction for the creation and sharing of knowledge and managerial support for knowledge management at all levels. Organisational culture that minimises employees' interaction focuses on individual performance, and hoarding of information within organisational department (Becerra-Fernandez et al., 2004), and organisation in which top level management is not involved is a hostile environment for knowledge management in which knowledge sharing and retention is almost impossible. In addition, if people fear being accused of ignorance, they may be reluctant to ask others if they have the answer to a specific question, or do not feel comfortable placing a question for the whole company to view, is another sign of an inappropriate culture for knowledge sharing and management (Koudsi, 2000).

DeTienne and Jackson (2001) provide an example of a baby good manufacturer in which strong competition between the corporate structure prohibited knowledge sharing that could have reflected in a tremendous increase of revenues. In this organisation, the performance of the frontline salespeople was judged based on that of other salespeople (Becerra-Fernandez et al., 2004). Hence, a group of sales people discovered a niche market and started selling baby food to adults who find it hard to chew and swallow, nonetheless, they kept this market base to themselves and their profits were significantly higher. Since this organisation provided incentives and rewards on a completion basis, and based on the wrong principles, it not only missed out on a potential increase in profits but also designing a product for a niche market that could increase their sales and in return their revenues.

In contrast Koudsi (2000) provides an example of a successful CEO of a web-consulting organisation that put in place measures to encourage the use of the company's knowledge management system. To do so, he recognised employees

who were contributing to increasing the body of knowledge in public, in addition, he made the knowledge management system an integral part of each employees job description. Hence, it was formalised that knowledge management is a component they all need to take part in and are evaluated on. Furthermore, if employees posted information on the knowledge management system (e.g. their resume, project record etc.), they are given points, the number of points depend on the value of the information they provide. The knowledge manager acts as a judge to how many points each document posted receives depending on its value. The points were added up at the end of every 3 months and contribute 10% to the employees' quarterly bonus.

Therefore, implementing knowledge management initiatives almost always requires a cultural change to encourage a culture of knowledge sharing and collaboration (Alvesson, 2012; Dalkir, 2011). The more the people are involved and informed of the benefit of this change, the less likely that they will oppose it. The foundation of a knowledge-sharing culture is built on trust, communication and involvement (Alavi et al., 2005; Sveiby and Simons, 2002).

Corporate culture is an essential component to ensure that key knowledge and information flows within an organisation (Dalkir, 2011). Almost more important than the communication technologies that are implemented to facilitate knowledge sharing is the strength of the corporate culture and individual's commitment. In the past, knowledge flow was vertical from one level to another (Alvesson, 2012). Nonetheless, organisations nowadays need to change their culture to one that rewards the horizontal flow of knowledge as well (Alvesson, 2012).



Communication systems can support the development of such a culture (Bloom, 2000). For knowledge management to be successfully implemented, the process of creating knowledge should not be seen as proprietary or a single effort, instead it should be seen as a collaborative and participative undertaking (Dalkir, 2011). A knowledge sharing culture is one that views sharing as the norm, not the exception, where employees are motivated to work together, share and collaborate, and are rewarded for doing so. It requires a paradigm shift from 'knowledge is power' to 'sharing knowledge is more powerful' (Dalkir, 2011, p.186) and the culture will then determine what can be done with the knowledge assets of the organisation.

Gruber and Duxbury (2001) conducted an intensive study to understand the link between organisational culture and knowledge sharing. Their study revealed that the majority of explicit knowledge was communicated through databases (55%), followed by 40% intranet, 28% face-to-face and 25% shared drive. On the difficulties of sharing explicit knowledge, the study determined was due to the implementation of different systems and no standards, the information was not located where it should be and the tools were not easy to use or not easily accessible. To facilitate explicit knowledge sharing, training programs on knowledge retrieval were suggested, in addition to having a clear and standard knowledge strategy and the standardisation of information technology used.

With regards to tacit knowledge sharing (Gruber and Duxbury, 2001), face-to-face interaction was mostly utilised (90%), followed by informal networking (25%). The difficulties mentioned in sharing tacit knowledge were attributed towards the attitude of knowledge was power; hence people were hesitant to share. Moreover, difficulties such as identifying and locating expertise, being unsure if the knowledge exists and loss of knowledge when people leave the organisation were mentioned. To facilitate

the sharing tacit knowledge, it was suggested to recognise the value of tacit knowledge, improve relationships within the organisation, increase opportunity for people from different departments to connect and interact. Gruber and Duxbury (2001) concluded that a culture that supports knowledge sharing included the following: a rewards structure, openness and transparency, collaboration, trust and top management involvement.

A more recent study by Ali et al. (2012) revealed that all of the organisations surveyed used information and communication tools to share knowledge. Nonetheless, the technologies were more used to exchange documents more than to connect employees or locate expertise. Technologies such as video-conferencing, teleconferencing and email were used more than social networking tools. Nonetheless, the study concluded that social networking tools were effective tools to share tacit knowledge; however, studies need to be conducted on the critical success factors. Davison et al. (2013), supported these findings and recommendations in their study of information technology to support knowledge sharing.

### **Organisation Structure**

Knowledge management also relies heavily on organisational structures (Mintzberg, 2011; Becerra-Fernandez et al., 2004). There are a couple of aspects to organisation structures that are important to mention: hierarchal structure, communities of practice and specialised structures. Each of these aspects will be discussed below.

The hierarchal structure within organisations influences who interacts with whom and who is likely to transfer knowledge to whom (Alvesson, 2012). Traditional hierarchal structures influence the reporting process and in return the flow of data and information as well as, the groups who collectively make decisions, as a result

impacting the sharing and creation of knowledge (Becerra-Fernandez et al., 2004; Mintzberg, 2011). There is a movement nowadays towards decentralising or flattening organisational structures (Mintzberg, 2011; Jashapara, 2011), in this way the number of layers in the hierarchy are minimised, therefore putting more responsibility within each individual, in return arguably empowering them and the scope of the groups reporting to each individual is broadened (Dalkir, 2011). This way knowledge sharing is effective for the groups are larger and the structure is decentralised (Dalkir, 2011). In organisations like these, to facilitate better knowledge sharing and management it is also recommended to practice leading vs. managing to foster knowledge sharing across all different departments (Fernandez, et al. 2004).

In addition, organisation structures can enable knowledge management through communities of practice (Wenger, 2004; Beamish et al., 2001). Storck and Hill (2000), give example of Xerox and how they formed a strategic community of information technology professionals where they interact on a regular basis amongst themselves, in return facilitating knowledge sharing. The benefit of communities of practice is that they allow a wider range of individuals than it is feasible within the scope of traditional departmental boundaries (Wenger, 2004). As a result, the number of potential helpers is higher; in return the probability of attaining valuable knowledge is higher.

Furthermore, communities of practice are not only limited to within organisations, they also facilitate access to external sources of knowledge such as external stakeholders' suppliers and partners (Dalkir, 2011). Choo (1998) argues that these external sources (e.g. customers and suppliers) provide a pool of knowledge as opposed to that of just the organisation. An example is the relationship between

biotechnology firms and university researchers, the universities assist the biotechnology industry in maintaining their innovativeness.

The communities of practice are not often a part of the organisation's formal structure (Becerra-Fernandez et al., 2004), nonetheless senior management can enable them by providing support (Wenger, 2004) in terms of participation and by giving them a voice (i.e. listening to their point of views and going back to them for advise) as well as providing resources (e.g. money, connection to external experts and etc.).

Finally, organisation structures can enable knowledge management through the adoption of specialised structures and roles that particularly sustain knowledge management. There are three different scenarios to achieve this (Becerra-Fernandez et al., 2004):

1. Hiring a chief knowledge management officer who is responsible for acquiring all information, storing and sharing it. In addition to being responsible for all knowledge management initiatives.
2. Formulating a department solely dedicated to knowledge management that is usually headed by the chief knowledge management officer (Becerra-Fernandez et al., 2004).
3. Establishing two knowledge management units, the research and the corporate library and the development unit (Becerra-Fernandez et al., 2004). Each emphasises a different element; the research and development unit focuses on the management of knowledge related to all that is new and future enhancements and progress while the corporate library focuses on supporting

business departments by acting as a warehouse of backups and historical records about the organisation, industry and competition.

### **Information Technology Infrastructure**

The information technology infrastructure also enables knowledge management (Hahn and Wang, 2009; Becerra-Fernandez et al., 2004). Some information technology systems are designed solely for knowledge management, others are created to support the organisation's information system's needs. Nonetheless, it is important to note that they need to also be able to support knowledge management (Alavi and Leidner, 2001).

The information technology infrastructure consists of: data processing, storage and communication technologies and systems (Alavi and Leidner, 2001). The information technology (IT) infrastructure spans through all functions from day-to-day functions in which transaction processing systems are used to strategic decision-making where business support systems and management information systems are used. To view the IT infrastructure in a systematic way is to observe the capabilities provided in four different aspects: reach, depth, richness and aggregation (Hislop, 2005; Evans and Wurster, 1999).

The information technology infrastructure reach refers to the accessibility and the effectiveness of this access. In terms of networking it refers to the number of geographic locations of the nodes that can be reachable (Becerra-Fernandez et al., 2004). The phrase reach may also be used to refer to being capable to connect to 'anyone, anywhere' (Jashapara, 2011, p. 44). The increased interest in the internet is the ability to reach a huge range of people and the concept that people can connect to it at a reasonably cheap price (Vermaat, 2008).

In comparison with reach, depth refers to the amount of information and detail that can be effectively communicated over a medium (Vermaat, 2008; Hislop, 2005). In technical terms this is addressed as the bandwidth and customisation (Evans and Wurster, 1999; Vermaat, 2008). The higher the depth and amount of information, the higher the bandwidth required.

A classification of communication channels can be performed along a scale based on its 'relative richness' (Hislop, 2005). There are four angles that determine the richness of a medium (Becerra-Fernandez et al., 2004):

1. Presents various cues (posture, body language, tone of voice)
2. Presents prompt feedback
3. Provides personalised messages
4. Utilise natural language to convey subtleties

Finally, the potential for aggregation, which refers to the ability to store and effectively process information from multiple sources (Becerra-Fernandez et al., 2004; Vermaat, 2008). Technologies such as data warehousing and data mining provides the ability of bringing together large volumes of data and information from different sources and providing it with meaning. Another example is the popular enterprise resource planning (ERP) systems that are used as a base for bringing together knowledge various organisational departments. For instance, in an interview with Thomson (2000, p. 24), from Price Waterhouse Coopers, a senior executive comments:

*"We're moving quite quickly onto an intranet platform, and that's giving us a greater chance to integrate everything instead of saying to people, 'use the database*

*and that database and another database' Now it all looks (and is) much more coordinated"*

The role of information technology for knowledge management will be examined further in this next chapter.

### **Common Knowledge**

Grant (2002) sheds light on another aspect of the knowledge management infrastructure that facilitate knowledge management and that is the common knowledge. Zander and Kogut (1995), refer to knowledge that is common as the organisation's overall, collective experiences in understanding a class of knowledge and activities and the overlying foundations that support communication and coordination. Moreover, common knowledge provides a sense of togetherness in the organisation through the use of familiar language and terminologies, and the awareness of each employee with each other's specialisations, shared cognitive plan and norms, as well as aspects of specific knowledge that is common across the people transferring knowledge (Grant, 2002; Nahapiet and Ghoshal, 1998).

By bringing together the knowledge of an individual with the knowledge of others, common knowledge increases the value of individual expert's knowledge (Becerra-Fernandez et al., 2004). Nonetheless, since common knowledge based on its definition refers to knowledge that is common to a particular organisation, this enhancement in value is specific to that organisation and does not transfer to its competitors (Becerra-Fernandez et al., 2004). Therefore, Argote and Ingram (2000), argue that common knowledge encourages knowledge sharing within the organisation but hinders the sharing of outside the organisation (Becerra-Fernandez et al., 2004).

### **Physical Environment**

The importance of the physical environment in organisations is often underappreciated, nonetheless it is one of the key aspects of which knowledge management is built up from (Becerra-Fernandez et al., 2004). The most crucial components of the physical environment entails the kind of offices and the number of them (Becerra-Fernandez et al., 2004), the way in which the meetings rooms are designed, and the overall design of the building.

Physical environment can enable knowledge management by facilitating opportunities for employees to meet and share concepts and ideas. Areas such as coffee rooms, kitchens, water coolers and corridors all allow employee knowledge sharing and learning. Wensley (1998) reported in a study conducted that almost all employees felt that they acquired most of their knowledge that is in line with work from information conversations they had with other employees at meals or around water coolers as opposed to formal training or instructions booklet.

Nowadays, organisations are considering the physical environment as a mean to foster communication, knowledge sharing and learning (Alvesson, 2012; Jashapara 2011). Some organisations specifically create spaces to allow this effective informal discussion. For instance, to enable major departments to engage in knowledge sharing, London Business School developed a communal space between these two departments (Becerra-Fernandez et al., 2004). Other organisations such as Reuters news service, established a kitchen on each floor to give room for employees to meet each other and share knowledge (Becerra-Fernandez et al., 2004). Stewart (2000) sheds light on a medium-sized company that pays particular attention to office locations to enable knowledge sharing. The offices are designed in an open-plan way with clever arrangements to motivate knowledge interaction to occur.



Employees have the opportunity to have face-to-face interactions with other employees who can assist them. For instance, an employee can walk to get a question answered not by luck but because a small kitchenette area is located in which four different project team work areas intersect (Becerra-Fernandez et al., 2004).

Once the knowledge management strategy is defined, and the processes and infrastructure are in place, organisations need to determine the impact of the knowledge management initiatives implemented and whether they deliver the anticipated benefits. This will be covered next.

### **Determining the Impact of Knowledge Management Initiatives**

In any area of individual task or organisational performance, it is crucial to keep an eye on whether the initiatives are enabling the organisation or the individual to achieve underlying objectives (Becerra-Fernandez et al., 2004). If an assessment did not exist, it would be difficult to tell the value of those initiatives and the improvements that needs to be made (Becerra-Fernandez et al., 2004; Alavi and Leidner, 2001). A knowledge management assessment is designed to evaluate the need for knowledge management solutions, the knowledge these solution can aid to discover, capture, share or apply, and the effect they have on individual or organisational performance (Becerra-Fernandez et al., 2004).

Knowledge management assessments can be divided into three different ways: when knowledge management is assessed, how is knowledge management assessed and what aspects of knowledge management are assessed (Becerra-Fernandez et al., 2004; Fairchild, 2002). With regards to the timing of knowledge management assessment, an assessment could be done periodically to evaluate the

overall quality of knowledge management solutions (Becerra-Fernandez et al., 2004). It could be done at the start of a knowledge management project to prove its significance and identify the gap in current knowledge management at the organisation. Finally, a knowledge management assessment could be done after a knowledge management project to determine the impacts of the project and to establish historical knowledge management performance that will enable the evaluation of the effects produced by the knowledge management project (Becerra-Fernandez et al., 2004).

The second way knowledge management assessment could be classified is in terms of the nature of knowledge management. There are two different methods to perform knowledge management assessments, qualitative and quantitative (Becerra-Fernandez et al., 2004). The objective of the qualitative approach is to build a general understanding of what knowledge management efforts are working. In the contrary, the quantitative approach results in a specific number score indicating how well an organisation is performing with regards to knowledge management. Considering both, the qualitative approach is the recommended one during an organisation's early experience with knowledge management specifically when operating in uncertain environments.

Finally, there are variances in the features of knowledge management that may be assessed (Becerra-Fernandez et al., 2004); here the focus is on the aspect under assessment. For instance the assessment of knowledge management solutions (Collison and Parcell, 2001), this involves the evaluation of the extent to which knowledge discovery, storage, transfer and application processes (Becerra-

Fernandez et al., 2004) are utilised and how well they are supported by knowledge management systems and technologies. The assessment of knowledge itself falls under this category, which entails: defining the different aspects of knowledge that are of relevance to the organisation, an assessment of the degree to which knowledge in each of these areas is accessible and consequently an assessment of the level and quality of available knowledge. Moreover, a vital feature of knowledge management assessment is the value each area of knowledge contributes to the organisation (Becerra-Fernandez et al., 2004); these can be expressed in tangible and intangible measures. The last assessment that belongs to this category is the assessment of impacts. Knowledge management solutions and the knowledge they enable to create, store, transfer and apply can affect a person, processes and overall competitiveness of the organisation (Becerra-Fernandez et al., 2004). Hence, a knowledge management assessment not only includes the evaluation of knowledge management solutions and knowledge but also an evaluation of their impact on employees, processes, products and organisational performance as a whole (Becerra-Fernandez et al., 2004).

A scan of the literature revealed that the researchers use two mechanisms to identify an assessment framework for knowledge management, either by using key process areas (Ehms and Langen, 2002; Kochikar, 2000; Paulzen and Perc, 2002; Kulkarni and Freeze, 2004; Kilmko's, 2001; Weerdmeester et al., 2003; Mohany and Chand, 2004) or critical success factors (Robinson et al., 2006; Skyrme, 2007; Mohammadi et al., 2009) while the vast mass opt for key process areas. Almost each areas identified correspond to the key components of knowledge management (people, process and technology), which is a positive sign of their relevance,

comprehensiveness and thoroughness. Other key process areas, which were not mentioned in the components and could be embodied, are culture and organisation. On the other hand the critical success factors touch on elements of trust, top management support and motivation.

Furthermore, the majority of the existing knowledge management frameworks adopted their initial structure from the capability maturity model (CMM) provided by software engineering which is organised at five levels, the functions of which are to prioritise the increase of a software process maturity (Khatiban et al., 2010; Ehms and Langen, 2002; Kochikar, 2000; Paulzen and Perc, 2002; Kulkarni and Freeze, 2004). The limitations of this approach is that although for each level, key process areas are identified, these areas only specify the items that are correlated activities that satisfy a set of substantial goals to improve the effectiveness of the area if they all around done together i.e. all at once (Khatiban et al., 2010). In response to this limitation, there was a rise of two different models, the capability maturity model integrated (CMMI) and the people-capability maturing model (P-CMM). As opposed to the CMM, the CMMI provides a phased and continuous representation. The P-CMM integrates human resources with organisation structure and brings them to maturation.

A study by Khatiban et al. (2010) used CMMI as a base model to develop a framework for measuring knowledge management maturity level in organisations. The study identified and extracted 8 factors (IT, strategy, human resources, organisation structure, process, culture, leadership and evaluations) and 42 variables that affect knowledge management and consequently developed a

knowledge management maturity model. The maturity position of an organisation in knowledge management is determined by defining existing status of factors and variables, and from the prioritisation of factors and variables enabling the organisation to optimise its profile. Another factor that distinguished this study is the use of critical success factors as opposed to key process areas. The limitations however, is the applicability of the framework, the framework is relatively new and has only been applied to two organisations (one public and one private) of the same industry that produces software products.

There are other approaches which are and could be used for knowledge management assessment. These include benchmarking for example or the balanced score card (Fairchild, 2002; Gooijer, 2000) which maintains the adequate combination between short and long term goals, financial and non-final aspects, lagging and leading indicators and external and internal perspectives (Becerra-Fernandez et al., 2004). It examines four different perspectives, customer, financial, internal business and learning and growth (Tiwana, 2002). For knowledge management assessment, the initial step entails interpreting the KM vision, the next step entails business planning (Becerra-Fernandez et al., 2004). Another two approaches which recognise the significance of studying the intangible knowledge include the Intangible Assets Monitor framework and the Skanadia Method (Becerra-Fernandez et al., 2004). Furthermore, an overall approach for KM assessment is the real options approach, which illustrates knowledge management initiatives as a portfolio of investments (Tiwana, 2002). Finally, the EFQM excellence model that illustrates that in order to achieve results, innovation and learning leadership, people, policy and strategy, partnership and resources and processes should be in place.

Thus far, the underlying principals and various literatures on knowledge and knowledge management have been established. Knowledge management has been defined, the strategies, processes, infrastructure, maturity models and assessments frameworks has been examined.

The next section observes the growing trends, opportunities and challenges in the field of knowledge management in the Arab region.

### **Knowledge Management in the Arab Region and the Case of the United Arab Emirates (U.A.E.)**

As it has been established in earlier sections, in the current global and competitive environment, knowledge has been identified as one of the critical assets and sources of success and wealth. Therefore, the area of knowledge management has rapidly gained significant interest from both the public and private sectors. This is evident in the number of research studies particularly addressing how to facilitate the creation and transfer of knowledge within organisations (Biyygautane and Al-Yahya, 2011). In addition, how to adopt systems that can protect this knowledge from loss in today's work environment that is very diverse and mobile. As a result, private and public organisations realise the importance of creating and sharing knowledge and are implementing knowledge management programs and strategies. Nonetheless, until the recent financial crisis and outburst, knowledge management gained less attention in the Arab world and there is a dearth of existing research on this topic in the MENA (Middle East & North Africa) region (Biyygautane and Al-Yahya, 2011; Skok and Tahir, 2010; Boumarafi and Jabnoun, 2008).

Governments in developed countries, specifically members of the OECD rolled-out many initiatives to encourage the utilisation of knowledge in work organisations,

since early 2000 (Biygautane and Al-Yahya, 2011). Moreover, annual surveys of these countries public and private organisations have been conducted to reveal that knowledge management is one of the main drivers for organisational effectiveness as it addresses economic problems such as retiring workforce or losses related to high turnovers. Upon considering the utilisation and transfer of knowledge, many organisations realised that they possess more knowledge than they are aware of (OECD, 2003).

As a result of the recent global and institutional performance problems, both government entities and private sector firms are seeking ways to develop, integrate and manage human capital and knowledge resources in a more sustainable and strategic way (Biygautane and Al-Yahya, 2011). In particular, the GCC countries (including: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates) have inherited key challenges in terms of the creation and management of knowledge. These include: lack in national skills and knowledge resources (Biygautane and Al-Yahya, 2011), dependence on large number of foreign workforce and addressing the knowledge-skill gap necessary for the implementation of economic development goals (Biygautane and Al-Yahya, 2011). The region was partly able to afford this as a result of the abundance in financial resources, improved living and working conditions and the greater integration into the global economy (Biygautane and Al-Yahya, 2011).

Nonetheless, this is no longer the case given the changed conditions for instance the decreasing monetary allocation to major expansion projects and human resource development (Biygautane and Al-Yahya, 2011), the talents leaving many sectors, and the goal of nationalising the workforce. This shed light on the limitations of prior approaches to organisation and management developed activities implemented by

both the private and public sectors in the GCC region (Biygautane and Al-Yahya, 2011; Al-Yahya, 2010). These emerging conditions brought rise to many questions regarding the significance of how knowledge, in its various forms and sources, is captured, organised, stored, shared, and used to achieve strategic goals. As demonstrated in the Arab Knowledge Report (2009), knowledge has been identified as the trigger to growth and development. Therefore, to maximise the potential of knowledge for sustainable performance, effective knowledge management is important for work organisations as well as the society as a whole.

Of significant value, to GCC countries, is the strategic management of knowledge. Ample investments have been made to develop and attract knowledge resources and human capital through training, education and research. However, despite the aforementioned investments and efforts, current studies identify that there has been low return with regards to the capture and transfer of knowledge, in addition to improved performance. A major finding is the remarkably high level of underutilisation of skills and knowledge, specifically in the public sector (Biygautane and Al-Yahya, 2011). The levels of underutilisation reached 47% in Saudi Arabia, 45 % in Oman and 42% in UAE (Al-Yahya, 2009). This demonstrates how approximately half the available knowledge resources and skill is not adequately recognised and used for achieving organisational objectives. In addition, the GCC countries have been fortunate in terms of appealing to international expertise and talents, which enabled the region to build the necessary foundation and infrastructure (Biygautane and Al-Yahya, 2011). Nonetheless, these sources of knowledge eventually leave the local markets, taking the experience and knowledge they had acquired with them (Al-Yahya, 2010). As a result, this leads to considerable loss for local organisations.



There is a dearth of literature on the subject of knowledge management in developing countries (Biyygautane and Al-Yahya, 2011). A search of electronic and print resources available revealed a limited number of studies on knowledge management initiatives or practices in developing countries. Moreover, only three of these studies were in the UAE.

One of the highest per capita income in the Arab world in general and Middle East in specific is owned by the UAE. Moreover, comparatively the information and communication technology infrastructure is well-developed. The countries' economy is highly reliant on oil that is a diminishing resource of economic development. The UAE authorities are aware of this fact and have thus initiated the diversification of the country's economic resources, by seeking development from a knowledge management perspective. Henceforth, policies have been revised to increase knowledge attributes and know-how in order to improve peoples' lives in myriad ways (World Bank Report, 1999).

As a result of the aforementioned, knowledge development objectives have been embedded in the 2007-2008 public policy agenda and the 2021 vision for the Government of Abu-Dhabi. Government entities in Abu-Dhabi were mandated to incorporate the latest knowledge management practices and tools contributing towards the vision of the government of Abu-Dhabi (to be one of the world's leading governments and to create a sustainable knowledge economy). The Department of Municipal Affairs (DMA) took the lead and is the first government entity to launch a knowledge management framework in collaboration with Abu-Dhabi, AlAin and Western Zone municipalities. If deemed successful the framework will be adopted across all Abu-Dhabi government organisations.

The next section observes the growing trends, opportunities and challenges to the field of knowledge management in general.

### **Knowledge Management Current Status, Limitations and Challenges**

Knowledge management integrates, people, processes, and technology to ensure performance for sustainable growth (Gorelick et al., 2005). Provided that a major amount of organisational knowledge exists in the mind-sets of employees, it is important to establish an adequate environment and platform for employees to share knowledge (Nonaka and Takeuchi, 2001, Newell et al., 2009). In return, fostering higher performance, innovation and organisational competitiveness. In the past, a fair proportion of knowledge management initiatives were driven by technology and the people component was almost negligent (Sinclair, 2007; Tsui, 2005). Naturally, this led to huge failures and losses (Hahn and Wang, 2009).

Therefore, it could be observed that the knowledge management literature is moving away from focusing on the explicit dimensions of knowledge to the tacit dimension of knowledge which is a more interactive, people-centred approach in knowledge sharing (Hazlett et al., 2005). An additional shift that is notable is in the discipline of knowledge management itself, it is undergoing a paradigm shift from a static knowledge-warehouse approach towards a more dynamic communication-based or network approach (Kuhlen, 2003). Finally the current knowledge management literature focuses more and more on the value of interactive knowledge management web technologies (taking the form of virtual communities) in incorporating the human aspects to knowledge management initiatives and solutions (Paroutis and Saleh, 2009). This will be explored and built on in the next chapter, discussing the role

information and communication technologies can play in supporting knowledge management processes, the opportunities, challenges and limitations.

## **Chapter 4- Information and Communication Technologies and Knowledge Management**

Information and communication technologies are defined as “technologies which allow/facilitate the management and/or sharing of knowledge and information. Thus the term covers an enormous diversity of heterogeneous technologies including computers, telephones, email, databases, data-mining systems, search engines, the internet and video-conferencing equipment” (Hislop, 2005, p.105).

The importance of the role given to information and communication technologies has dominated the early knowledge management literature (Grundstein, 2013; Scarbrough and Swan, 2001). This could be observed in two ways; firstly, the way authors have placed information communication technologies at the core of all early knowledge management literature and how optimistic they were about its contributions to knowledge management processes (Jashapara, 2011). A study conducted by Scarborough and Swan (2001), revealed that 68% of the literature on early knowledge management focused on information technology and systems. Secondly, there is evidence of the major role information communication technologies played in the implementation of knowledge management initiatives (Sinclair, 2007). A survey revealed that the four most implemented knowledge projects included the deployment of data warehouses, decision support tools, groupware and intranets (Ali et al., 2012; Edwards et al., 2003; Ruggles, 1998). Although these perspectives were heavily criticised, this did not result on a position where information communication technologies were deemed to have no helpful role. As a matter of fact, there is a move towards conceptualising the relationship between

information communication technologies and knowledge management processes (Hislop, 2005). This point will be discussed further on in the chapter.

## **Characterizing Information and Communication Technology Supported Knowledge Management processes**

Ample has been written on bringing together information communication technologies and knowledge management processes (Alavi and Leidner, 2001; Becerra-Fernandez et al., 2004; Hahn and Wang, 2009; Hendricks, 2001) and when grouped they constitute of either an objectivist perspective or a practice-based perspective (Hislop, 2005).

### **Objectivist Perspective**

There are some key assumptions underlying the objectivist perspective that in return effect the way information communication technologies can play a role to support knowledge management processes. The objectivist perspective views knowledge as an object that exists in an explicit form or can be easily codified and shared (Grundstein, 2013; Steinmueller, 2000). In this manner, the objectivist perspective views information and communication technologies as having a straightforward role in knowledge management processes (Hislop, 2005). It views information and communication technologies as a channel that enables knowledge sharing (Scarborough and Swan, 2001). First, knowledge is codified and stored, and then this organisational knowledge is managed enabling users to disseminate, search, utilise, create and integrate knowledge. For instance using search engines to locate people within directories of expertise.

Although there was a strong focus on information and communication technologies and this perspective was adopted and acknowledged in the past, a huge number of technology led knowledge management initiatives failed (Kuo and Lee, 2011). This

could be attributed to their emphasis on technology alone without keeping in mind the cultural, social and political factors surrounding these projects (Butler and Murphy, 2007; Kuo and Lee, 2011; Massey et al., 2002).

While the objectivist perspective on knowledge management have been heavily criticised due to the vast number of failures, there is still evidence that organisations are still adopting this approach of technology focus in their knowledge management initiatives (Morris, 2001; Robertson, 2002; van der Velden, 2002), nonetheless less common than it was in the mid 1990's. This perspective has been criticised for various reasons: firstly, it overestimates the level to which tacit knowledge can be made modifiable. Secondly, it underestimates the level to which explicit and tacit knowledge are inseparable. Thirdly, this perspective underestimates the level to which organisation knowledge is fragmented. Fourthly, it underestimates the level to which knowledge is context-dependent and finally, this perspective is criticised for its over-confidence on the ability for knowledge to be gathered in a central repository (Kuo and Lee, 2011; Hahn and Wang, 2009; Hislop, 2005). This brought rise to the practice-based perspective on knowledge (Jashapara, 2011; Hislop, 2005; Empson, 2001; Suchman, 2003; Walsham, 2001).

### **Practice-based perspective**

The practice-based perspective views information communication technologies as having a less direct yet equally important role in facilitating and supporting the social process that form the basis for knowledge processes (Jashapara, 2011; Empson, 2001; Suchman, 2003; Walsham, 2001). Practice-based perspective enables interpersonal knowledge sharing via the use of different forms of communication and interaction mediums. For the communication process to be effective the interactions needs to be rich, open, and there should be an element of trust (Walsham, 2001).

However, when it comes to the role information and communication technology play in knowledge management processes there does not seem to be an agreement within the practice-based perspective. This will be discussed in the section below.

***Debates within the practice-based approach regarding information and communication technologies and knowledge management processes***

The first point of debate is with regards to the richness of interaction and whether information and communication technologies can facilitate it. Rich interaction is important for the process of perspective making and taking (Boland et al., 1994). Some writers believe that information and communication technologies enhance the process of perspective making and taking (Walsham, 2001; Boland et al., 1994; DeSanctis and Monage, 1999) whilst other writers are doubtful (Goodall and Roberts, 2003; Roberts, 2000; Symon, 2000; McLoughlin and Jackson, 1999).

Walsham (2001) considers interactive information and communication technologies as a potential mean for providing rich interaction, in return enabling the process of perspective making and taking. Boland et al. (1994, p.457) also advocates this view and suggests that information technology systems could be designed to enable this by stating “information technology can support distributed cognition by enabling individuals to make rich representation of their understanding, reflect upon those representations, engage in dialogue with others about them, and use them to inform action”. Nonetheless, Boland et al. (1994) argue that in order to achieve this, major transformation in information system design philosophies is required. This is in line with the findings suggested from recent studies (Hahn and Wang, 2009; Grundstein, 2013; Ali et al., 2012; Sinclair, 2007). DeSanctis and Monge (1999, p. 696), are also in favour of information and communication technologies arguing that instead of the loss of social cues that happen when communicating by most information and communication technologies being perceived as negative, that actually such a loss

may facilitate understanding by as they put it “removing the distraction of irrelevant stimuli”.

Nonetheless, there are some scholars that question the richness of interaction that information and communication technology provide (Goodall and Roberts, 2003; Roberts, 2000; Symon, 2000; McLoughlin and Jackson, 1999) mainly due to the lack of social cues such as gestures, tone of voice, body language and facial expression arguing that the lack of these cues result in the degradation of the communication process and in return, restricts the knowledge that can be shared by such channels (Goodall and Roberts, 2003; Roberts, 2000; Symon, 2000). On another note, it is argued that rich knowledge sharing in virtual communities only happens when pre-existing social relationship between people exists (McLoughlin and Jackson, 1999).

Other authors (Maznevski and Chudoba, 1999; Hislop, 2005; Jashapara, 2011) take a different stance, suggesting that whilst alone information and communication technologies may provide restricted potential to facilitate richness of communication, they could be combined with face-to-face interactions to enhance the richness. Similarly, a study conducted by Maznevski and Chudoba (1999, p.473) concluded that effective global virtual teams “generate a deep rhythm of regular face-to-face interaction incidents interspersed with less intensive, shorted incidents using various media”.

As it can be observed from the above discussion, the features of face-to-face interactions are different than the ones from electronically mediated communications. Moreover, different information and communication technologies have different features. Nonetheless, the features and level of information richness of different information and communication channels is debatable (Hislop, 2005).



The Information Richness Theory is found in the information system literature and is used as a framework to define a communications medium by its capability to reproduce the information sent over it (Daft, 1986). According to Information Richness Theory, mediums could be ranked with regards to the degree of information richness. In this context, face-to-face interaction is the richest and emails are the least rich.

Hislop (2005) incorporated the mediums, features and ranking of these mediums in a table describing the least rich medium and highest rich medium along with their communication features (figure 3). However, in the process of establishing this, Hislop (2005) placed a question mark besides the ranking arrow as this theory has been increasingly criticised. The idea of assuming that each channel of communication has a fixed and objective information richness feature was not accepted by theorists. Ngwenyama and Lee (1997, p.148) argued that leanness or richness of any communication process depends on the “interaction between the people, and the organisational context”. They argue that the social and technical factors underlie the richness of any communication process including: the interest of people in making an effort to communicate, the level of mutual understanding between people and the competency of people in using communication channels (Becerra-Fernandez et al., 2004; Ngwenyama and Lee, 1997; DeSanctis and Monge, 1999). Hence, channels that are identified as ‘low rich’ mediums such as emails can be used to discuss complex, information rich interactions if the organisational environment supports it or people become competent in utilising it.

Medium	Communication Characteristics
<b>E-mail</b>	Suitable for sharing of highly codified knowledge Relatively low information richness (all social cues lost) Inexpensive (cost, unrelated to geographic proximity) Asynchronous, with variable feedback speed Spontaneous/information interactions possible irrespective of geographic proximity Permanent record of interaction exists Development of trust based on e-mail alone difficult
<b>Telephone</b>	Intermediate information richness (tone of voice conveys some social cues, but gesture, expression invisible. Also, synchronous, facilitating detailed immediate feedback) Cost variable Spontaneous/informal interactions possible irrespective of geographical proximity Can facilitate development of trust where face-to-face interaction is difficult
<b>Video Conferencing</b>	Information rich (social cues, and virtually real time, synchronous medium) Expensive to set up Set up time inhibits spontaneity
<b>Face-to-Face Interaction</b>	Information rich (social cues such as facial expression, voice, gesture visible. Plus, synchronous communication, potential for rapid high-quality feedback/interaction) Most relevant for sharing of tacit knowledge Spontaneous/informal interactions possible when people geographically proximate Conditions amenable to development of trust (other factors excluded) Expensive when people geographically dispersed

Figure 3: Increasing Information Richness? (Source: Hislop (2005,p.113)

In addition organisational factors such as organisational culture could influence the communication channel used and the way it is utilised (Alvesson, 2012; Alavi et al., 2005). For instance email channels may be used more often in organisational cultures that stress the importance of documentation and accountability (Hislop, 2005). In the contrary, face-to-face interactions and telephone channels may be

used in organisational cultures that encourage openness and team work (Hislop, 2005).

Another area of debate, relates to a point mentioned above, and that is how much trust can be established and maintained in social relations that are facilitated by information and communication channels of communication (Butler and Murphy, 2007). It is debated that face-to-face interactions not only yield a better understanding of each other but also extends to the level of trust developed and maintained. Some authors go as far as identifying face-to-face interaction as an essential element to develop trust (Roberts, 2000). In studying teams a study revealed that the teams who met occasionally face-to-face in addition to the electronically mediated interactions enhanced the level of trust between members (Maznevski and Chudoba, 1999). Another study of global virtual teams who communicated via desktop video conferencing, multimedia and email revealed that the lack of co-location resulted in a significant effect on trust development (Nandhakumar, 1999). The study concluded that ICTs alone are not adequate to develop and maintain trust at work (Nandhakumar, 1999).

On the contrary, there are some authors (Hossain et al., 2004; Kuo and Lee, 2011; Butler et. al, 2007; Pauleen and Yoong, 2001; Jarvenpaa and Leidner, 1999) that suggest that developing and maintaining relationships that are totally information and communication technology mediated is feasible. A study of the role of information and communication technologies for relationship building in virtual teams revealed that social relations can be established and maintained amongst strangers through the strategic utilisation of various electronic communication channels such as email, video conferencing and telephone (Pauleen and Yoong, 2001). It is suggested that the suitable communication channels depends on the organisational context such as

culture and norms and there needs to be an alignment between organisational context and the channel of communication selected (Pauleen and Yoong, 2001).

Javenpaa and Leidner (1999) conducted a study of virtual teams separated in terms of time and culture, individuals who have not met before and have not had an opportunity to have a face-to-face interaction. In their study, they examined the relationship between team members and they have realised that there was an element of trust developed at an early stage of a group life, yet this type of trust was fragile. However, there are some behaviours that team members can show to help maintain the trust over time. For instance, behaviours such as communicating and showing willingness and enthusiasm in the task at hand at an early stage of a group foster the development of trust. At later stages of a group life, behaviours such as maintaining timely responses help foster trust. Hence, the authors conclude that there are some certain behaviours and actions that if team members were committed to and practiced, trust can be established by the use of information and communication technologies.

### **Implementation of Information and Communication Technology Based Knowledge Management Systems**

Contrary to the traditional, general purpose information systems, that are used to store large amount of data and organise them into specific format and outcome to achieve higher level of operational performance, knowledge management systems were created to support organisational knowledge management activities (Kuo and Lee, 2011; Quaddus and Xu, 2005; Alavi and Leidner, 2001). They are developed to help organisations capture, store, retrieve and distribute knowledge (Kuo and Lee, 2011; Alavi and Leidner, 2001). In order to do so, knowledge management systems

comes with knowledge management related tools such as database management systems, intranets and groupware. Table 4 highlights the main knowledge management tools used to support knowledge management.

**Table 4: Knowledge Management Tools (Source: Gallupe, 2001, p. 65)**

<b>Intranets</b>	Private internet-based networks using Web-browsers to share knowledge.
<b>Information retrieval programs</b>	Tools to search corporate knowledge/data bases as well as external knowledge sources to provide access to a wide variety of knowledge.
<b>Database management systems</b>	Combine with intranets and information network tools to provide a platform to build specific knowledge management tools.
<b>Document management software</b>	Provide the means for capturing, storing, and distributing knowledge in the form of documents as opposed to discrete data.
<b>Groupware</b>	Software and hardware that enables workgroups to communicate and collaborate. Groupware tools typically have features that enable groups to perform such tasks as generating ideas (create new knowledge) and reaching consensus.
<b>Intelligent agents</b>	Software programs that can filter out the knowledge that the user really needs. This may be particularly important in knowledge-intensive situations where particular knowledge sources need to be monitored.
<b>Knowledge-based or expert systems</b>	Store the knowledge of experts in the form of rules or cases and then provide that knowledge to novices or other experts.

Each of these tools is tied to an organisational knowledge management process (table 5) and it is argued that this leads to better decision-making, higher productivity and sustained competitive advantage (Nevo and Chan, 2007). Therefore, organisations started adopting these knowledge management systems and tools by making substantial investments (Tseng, 2008; O'Brien and Marakas, 2006).

Table 5: Knowledge Management Processes and IT Artefacts (Source: Butler et. al, 2007, p.2)

Knowledge management processes	IT Artefacts	IT Platform
Knowledge Creation	Data mining and learning tools	Groupware and communication technologies + Intranets
Knowledge Storage and Retrieval	Electronic Bulletin boards, knowledge repositories , Databases	
Knowledge Transfer	Electronic bulletin boards, Discussion Forums, Knowledge Directories	
Knowledge Application	Expert Systems, Workflow system	

However, the implementation of knowledge management systems resulted in a high failure rate (Hahn and Wang, 2009). Hislop (2005) identifies two potential reasons for this failure; firstly, information and communications technologies were not suited for the knowledge related functions that the system was designed for. This point relates to the practice-based perspective critique of the objectivist perspective indicating that the early information and communication initiative underestimated the challenges of codifying tacit knowledge.

The second potential reason of failure of earlier information and technology initiatives for knowledge management is in that the design and implementation of these systems was not appropriate. The ‘people’ aspect was undermined and if they would be willing to share their knowledge, which is a crucial aspect to the success of knowledge management initiatives (Hahn and Wang, 2009; Storey and Quintas, 2001; Hauschild et al., 2001; Ribiere, 2001; Hislop, 2005; Empson, 2001; Flood et al., 2001; Morris, 2001). The undermining of the people aspect meant not enough consideration was given to the social and cultural context that the system will be implemented in (Hahn and Wang, 2009; Scarborough and Carter, 2000). The focus

is more on the 'technology' for instance the process of storing knowledge instead of the willingness or ability of people to store the knowledge in these systems (Hislop, 2005).

The issues are not limited to the implementation of knowledge management systems only, for instance Symon (2000) commented on the use of these systems and pointed out that one should not assume that people will be willing to use these systems. On a similar note, not aligning the social conditions of the local context may result in the system being underused (Orlikowski, 2002). On the other hand, McDermott (1999) argues that not considering the social and cultural issues when designing and implementing information technology systems, will present the risk of reinforcing instead of transforming current cultures, behaviours and values.

Nonetheless, since each organisation is different in nature it is difficult to provide a standardised list of guidelines that organisations need to follow to implement successful initiatives (Hislop, 2005). Considering social-cultural context means looking into the distinct features of each organisation and adapting your processes and systems around them. To increase the understanding of the socio-cultural factors surrounding the organisation, Walsham (2001) recommends reflecting on the existing organisational culture and the type of current knowledge sharing processes it encourages and discourages. In addition, reflect upon the existing power relations and how they impact the knowledge process (Walsham, 2001). Upon reflection of these angles, organisations would be able to design and implement adequate information and communication technology systems that consider the socio-cultural factors (Hahn and Wang, 2009).

### **An alternative design philosophy**

Despite the aforementioned challenges, scholars still see a role that information and communication technologies can play in the process of knowledge management (Hahn and Wang, 2009; Butler and Murphy, 2007; Becerra-Fernandez et al., 2004; Alavi and Leidner, 2001). However, they acknowledge that achieving this will require a major transformation of focus in system design philosophies (Hislop, 2005; Butler and Murphy, 2007; Davenport and Pursak, 2000; Tenkasi and Boland, 1996). This is due to the objectivist perspective being adopted in organisations despite the amount of criticism it has been subjected to (Schultze and Leidner, 2002). This is apparent from the way knowledge is considered as an object that can be transmitted via the means of word and language with fixed meaning and by assuming that consensus is present in knowledge-based organisations, hence knowledge-sharing is unproblematic. Also, the systems that are in place are based on a transmitter and receiver model, “this model suggests that knowledge is shared by the transferal of explicit, codified knowledge (in the form of text, diagram or an electronic document and etc.) from an isolated sender to a separate receiver” (Hislop, 2005, p.22).

From this objectivist perspective, the focus of system design is on developing communication mediums that maximise richness of information and eliminate noise levels (Bolisani and Scarso, 2000). However, from a practice-based perspective the focus should be on developing processes of perspective making/taking between people and the fact that people have a lot of knowledge in communication should not be assumed (Tenkasi and Boland, 1996; Hislop, 2005). In return this requires the development of open systems that enable the browsing and sharing of different interpretations, taken for granted values and assumptions (Hislop, 2005).



Current knowledge management literature focuses on the value of interactive knowledge management technologies (taking the form of virtual communities) in incorporating the human side into knowledge management solutions (Paroutis and Saleh, 2009). The most prominent examples include blogs, wikis; these two together with other social media are called Web 2.0 technologies or social networking tools. Given the fluid nature and characteristics of such technologies it is argued that they provide a nurturing platform for participation in knowledge sharing and responds to the obstacles in the current technologies used within organisations (Sinclair, 2007; McAfee, 2006; Schneckenberg, 2009; Martin et al., 2009; Paroutis and Saleh, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Hence, it is argued traditional hindrances to sharing knowledge could be overcome (Sinclair, 2007). Given these advantages, organisations are increasingly starting to adopt these Web 2.0 technologies and social networking tools internally for knowledge management (Paroutis and Saleh, 2009).

In the next section, the background, features and rationale of these web technologies will be discussed.

### **The Evolution of the Web and its Impact on Knowledge Management**

The Web is one of the most popular services on the Internet. It is associated as a global library of information that is made available to anyone connected to the internet (Vermaat, 2008). Hence, the presence of the web revolutionised the practice of information sharing, retrieval and communication. Nonetheless, up until recent years, the potential of web technology based knowledge management has not been fully realized. A study by Zhang in the year 2000 concluded that the current web-based knowledge at that time was at a lower level.

The web was originally created to be a text and repository for human use. Its striking expansion nevertheless has initiated a significant increase in the expectations for web-based information retrieval, knowledge sharing and collaborative working (Dostika and Patrick, 2006).

Although the web did not go through an update in technical specifications, it has undergone cumulative changes in the ways end-users and software developers use the web. Formerly, the web connected people to a public and shared environment but did not allow direct communication between web readers and writers unless writers willingly released their contact information (Ding, 2007). A vast number of people around the world use the web as a mean to share personal information, videos and photos. Making a web page available or publishing it for all people in the internet to see is a service available to all and in some instances at no cost at all (Vermaat, 2008).

The second web evolution (web 2.0) is what is witnessed now (2013), not only are individuals connected to the web but these individual users are connected together through the web platform. It addresses the previous gap between web readers and writers (Ding, 2007). The collective set of tools used to emphasise activities of collaboration, sharing and end-users is called 'social networking tools' or 'social media' (Dostika and Patrick, 2006). Worldwide millions of people are joining online communities, each called 'social networking' web site. These websites motivate members to share their interests, ideas, studies, photos, music and videos with other registered users. Another hundreds of people today also use blogs for instance to publish their thoughts on the web which is an informal website set similar to articles in a diary or journal (Vermaat, 2008). Podcasts are another popular way people verbally share information on the Web. In relation to the 'push' and 'pull' knowledge

management strategies, in the past organisations involved online corporate yellow pages as a tool to find experts in specific areas and document management systems. With the advent of IBM's Lotus Notes, and other collaborative technologies in the late '90's, knowledge management technologies expanded beyond business directories and document management. This followed more of the pull strategy for knowledge management. In recent times, with the evolution of the web and the development of social computing tools such as blogs that allowed a more amorphous, self-governing approach to the creation, capture and transfer of knowledge, making them belong more towards the pull strategy (Paroutis and Saleh, 2009).

One cannot be certain what the next stage of the web evolution is but there is a move towards a semantic web, once it's matured it is aimed at connecting virtual representatives of real people who use the web (Sun et al., 2009). This in return will maximise the exploration of web resources (Ding, 2007). Figure 4 captures and summarizes the evolution of the web and the increasing role given to users in communicating, publishing content and knowledge.

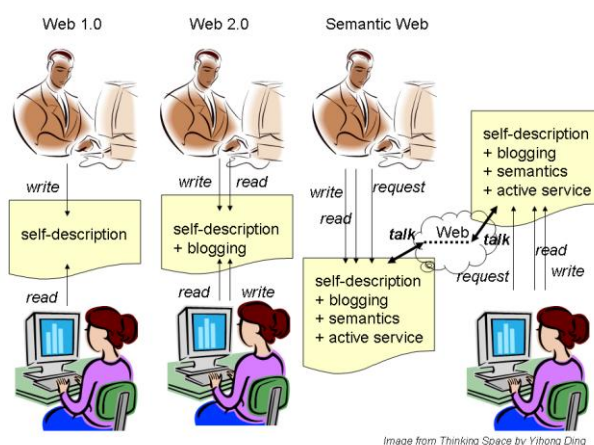


Figure 4: The Evolution of the Web (Ding, 2007)

To sum up, over the past few years we have witnessed a shift in how people have used the web as it evolved from a tool for publishing information and conducting business to a platform enabling novel ways of information sharing, communication and collaboration. This shift has brought rise to the term 'Enterprise 2.0' which is defined as the "use of emergent social software platforms within companies, or between companies and their partners or customers" (McAfee, 2006, p.1).

## **Enterprise 2.0 and Knowledge Management**

Over the past 6-7 years, the emerging electronic social applications made their way to the business environment. This swift movement and popularity could be mainly attributed to the accessibility of laptops, cheap internet access, rise of working from home behaviour and the diminishing of traditional concept of office hours (van Zyl, 2009; Shirky, 2008; Tapscott and Williams, 2006).

A study conducted to examine the degree that social media sites are being used for work purposes revealed that 83% of the US office workers utilised office resources to access social media, 30% of office workers in the USA and 43% of UK office workers stated that they used social media applications to discuss work-related issues and 40.8% of IT and business decision makers identified that they view social media as relevant to today's business environment (ClearSwift, 2007). Another global survey conducted by McKinsey (2007) revealed that 75% of executives indicated that their organisations have invested and will either maintain or increase their investments in Web 2.0 tools that will facilitate social networking behaviour such as user collaboration and peer exchange in business.

Why are these new technologies particularly noteworthy? McAfee (2006) answers this question by comparing the old technologies to the new technologies and

providing two reasons. Firstly, identifying that the users were not happy with the old channels (email and person-to-person instant messaging) and platforms (intranets, corporate websites and information portals) available to them. This is backed up by a survey conducted by Davenport (2001) that revealed that although all knowledge workers use emails, 26% of them felt it was overused in their organisation, 21% felt overwhelmed by it and 15% felt that it actually decreases their productivity. Another survey conducted by Forrester Research revealed that only 44% find their corporate intranet easy to navigate and locate information that is required. The second point McAfee (2006) provides is that the old technologies do not capture their knowledge well, indicating that as knowledge workers are conducting their jobs, they use channels regularly and browse both internal (intranet) and external platforms (internet). Nonetheless, “the channels can’t be accessed or searched by anyone else, and visit to platforms leave no traces. Furthermore, only a small percentage of most people’s output winds up on a common platform” (McAfee, 2006, p.22). Thus, the channels and platform in use aren’t much good at providing answers to such questions as (McAfee, 2006, p.22): “what’s the right way to approach this analysis, does a template exist for it and who is working on a similar problem right now?”.

McAfee (2006) argues that the new technologies are not limited to capturing knowledge itself but focuses on the knowledge worker’s practices and output. Sinclair (2007) also justifies the worthiness of these technologies as more adaptable with the changes in works habits and he also compares them to previous technologies. He describes past technologies as formal technology solutions that impose formal business structures and rules whilst knowledge management is far too fluid and broad of a concept to be wrapped around a technology solution. Having said that, Sinclair (2007) believes there should and can be a role for information

technology in knowledge management if applied 'appropriately'. He argues while email will remain a main tool for one-to-one communication, there is less focus on email as a collaboration tool of choice and that organisations are adopting new technologies to manage their real-time virtual workplace, such as wikis and blogs. Examples of such organisation are Walt Disney Corp., Eastman Kodak, and the US Army. Sinclair (2007, p. 259) concludes that these new technologies introduce 'less formalised structure' to the implementation of knowledge management in organisations, contrary to the 'rigid centralized control, and rules of use'. However, noteworthy to mention, their "different approaches to structure, do not mean that enterprise 2.0 technologies are incompatible with older ones. They can be added to the channels and platforms already in place" (McAfee, 2006, p.26).

Existing channels and platforms can be enhanced by adding the 'SLATES' features. 'SLATES' is an acronym introduced by McAfee (2006) to distinguish the key features of these new technologies and their potential in corporate contexts:

- Search: corresponds to the efficiency of users to locate dispersed information in the internet
- Links: corresponds to the use of links to build thorough interconnections between the information content across collaborating enterprises
- Authoring: refers to the user-driven content development and publishing across the organisation
- Tags: refers to the establishment of a peer-driven classification and validation of online content across collaborating enterprises

- Extensions: involves drawing out from previously gathered data of user activities to enable users to be advised to initiate other valuable activities. For instance, the option in Amazon, indicating the "other customers who purchased this book also purchased these books"
- Signal: involves sending alerts to users of the changing state of an element of interest for example the online status of other users in instant messaging clients

Van Zyl (2009, p.909) also sheds light on the criteria, components and requirements of these technologies. He identifies that they should firstly *support social networking* and this can be defined as, "applications or websites that support the maintenance of personal relationships, the discovery of potential relationships and should aid in the conversion of potential ties into weak and strong ties". This leads to the second requirement, they should *allow social feedback*. For a person to determine whether he/she wants to establish a connection with another person he/she need some form of social feedback or a 'digital reputation'. It enables other users to rate the contributions of others. With a digital reputation one could identify if the person holds the knowledge, expertise and experience he/she claims to have and in return decide whether the establishment of a strong or weak tie with that person would be beneficial. Last but not least, van Zyl (2009), mention that to qualify to an Enterprise 2.0, organisations need to *support two or more of the following modes of computer-mediated communication*: one-to-one such as emails or instant messaging, one-to-many such as blogs and web pages and many-to-many such as wikis and whiteboards. Therefore, as opposed to the traditional communication methods employed in the internet that were more top-down or in one direction, the emphasis

of these technologies is on two conversations in which the platform is open for all participants to share knowledge and opinions.

McAfee (2006) mentions, particularly interesting are the social aspects that these social networking tools provide, the tools are social:

- In the way it is conceived – bringing together connected tools around users in a networked approach
- In its purpose – promote mutual understanding by augmenting and expanding online and offline social interaction
- In the way it behaves – instead of forcing the user to adapt to these tools, it adapts to the user. The tools emerge as a form to facilitate understanding, expanding on human interaction, as opposed to limiting it (Bryant, 2004).

Similarly, Coakes (2006) suggests that social networking tools facilitate knowledge exchange and sense-making since the tools depend mostly on social aspects of every-day organizational life, instead of technological ones. As a result, these tools facilitate the emergence and discussion of diversity of topics.

Under the same light, Grudin (2006) advises that social networking tools have the potential of presenting a better alignment between informal employee knowledge exchange behaviors and digital technologies. He argues that while the current technologies may be effective in managing explicit and formal representations of knowledge, they tend to neglect the common conversational and socialization practices of employees. Grudin (2006) concludes that social networking tools offer



the potential of lifting the weight of formally expressing knowledge inside organizations through technological means.

Moreover, Tredinnick (2006) suggests that the potential of innovation of social networking tools in organizations does not emerge from technological breakthroughs, instead it emerges from the potential to change the role of the social actors and constructs (for instance individuals, teams, departments). Specifically, Tredinnick (2006) draws on particular characteristics of social networking tools (such as their openness and self-organized information structures) that allow the organization to take advantage of the collective experience of users.

Table 5 highlights the most popular generation of technologies relevant to social networking implemented in organisations nowadays. The description emphasises their online collaborative nature and the platform it provides for user-generated content sharing.

**Table 5: Enterprise 2.0 Social Networking Technologies -Source: van Zyl (2009, p.908)**

<b>Technology</b>	<b>Description</b>
<b>Blogging (web blog)</b>	Blogs are a self-publishing tool that resembles online journals where an owner can periodically post messages. Readers can subscribe to a blog, link to it, share links, post comments in an interactive format and indicate their social relationship to other bloggers who read the particular blog
<b>Wikis</b>	A wiki is a web site that allows online collaboration by allowing multiple users to add, remove or edit content and change content. It also allows linking among any number of pages
<b>Social bookmarking</b>	Social book-marking allows users to post their lists of bookmarks or favourite web sites for other users to search and view

<b>Tagging</b>	Tagging is the use of key words to track content on web sites. It can be used as a form of social bookmarking, where a user can gain access to all the content identified by other users and linked to the specific key word
<b>Really simple syndication (RSS)</b>	A web feed format used to publish frequently updated content. It lets users subscribe to their favorite “feeds” receiving automatic updates
<b>Collaborative real time editor</b>	An application that allows simultaneous editing of a text or media file by different participants on a network

Amongst the most widely used technologies identified are wikis and blogs (Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Wikis provide opportunities for different sources to contribute to a given project, in return fostering a collaborative organisational culture. On the other hand blogs are very much established to the extent that an increasing number of Fortune 500 organisations are adopting it (Dzamic, 2009; Lavenda, 2008; Middleton, 2008). The appeal of blogging is its informal nature, however it is argued that the success of blogs depend on:

- The relevant knowledge of those participating in the blog
- The freedom provided to bloggers to express their viewpoints
- The addition of intriguing content presented from distinct perspective
- The attractiveness of the writing style

(Dzamic, 2009; Lavenda, 2008; Middleton, 2008)

## Perceived Positives and Negatives of Enterprise 2.0

Van Zyl (2009) discusses the perceived positives of such technologies, firstly being the updated contact information of user maintained profiles. Individuals using these technologies can establish a global list of contact details of people that they have strong professional ties with, colleagues and co-workers. Unlike electronic

directories, the information is connected directly to the profiles created and maintained by the contact himself and the updates such as contact details, current activities, interest and expertise are done automatically and in a searchable format. Having access to this global list of contact details leads to the second perceived benefit of these technologies (Van Zyl, 2009), the ability of individuals to locate expertise, in addition it open doors to opportunities and potential business partnerships.

The third perceived benefit is the increase in productivity and workflow efficiency (Van Zyl, 2009). This is attributed to different reasons: the platform these technologies provide for collective problem solving and sharing amongst peers (Brown and Duguid, 2000; Davenport, 2001; Orlikowski, 2002), the minimising of organisational resource wastage by reducing the re-invention of the wheel, fixes and solutions to problems (Brown and Duguid, 2000), the integration of different modes of computer-mediated communication (such as email, instant messages, manuals, spread-sheets and presentations) into one application allows knowledge workers to aggregate information in an efficient manner by providing users with the opportunity to add labels (such as links, tags and social bookmarks) to make the information easy to retrieve and share (Brown and Duguid, 2000; Van Zyl, 2009). Finally, it is argued that synchronous or real-time communication such as telephone calls and meetings can be time consuming, interruptive and may result in decreased productivity while asynchronous or delayed communication for e.g. email are either usually either misused or over used. Hence, Van Zyl (2009, p.911), argues that these technologies “can assist organisations to create an online resource containing accumulated wisdom of the organisation, by allowing knowledge be codified, searched and shared. By decreasing the use of emails and other disruptive

communication methods, the use of asynchronous communication methods such as blogs and wikis, can increase productivity and work flow efficiency”.

Another perceived benefit that Van Zyl (2009) mentions, is the increase in staff morale and motivation and she attributes this to the culture of sharing that these technologies promote in which a person feels motivated to contribute valuable information to a group of people while expecting to get useful information and assistance in return (Graham and Hall, 2004). In addition, using these technologies enable the contributions to be rewarded by rating, feedback and the gaining of followers (individuals subscribe or link to your work). In return, a digital reputation is formed one that recognises people’s contributions and puts value on the individual’s knowledge (Brown and Duguid, 2000).

Amongst the other perceived benefits is the ability to retain and retrieve cumulative organisation knowledge and experience in a fully searchable format and the efficient use of information and communication technologies, finally, these technologies can be beneficial for effective customer relations, branding and marketing purposes (Van Zyl, 2009). Innovation and break through could be achieved through keeping a close eye on customer communication, feedback and opinion (Matuszak, 2007, Tapscott and Williams, 2006).

Nonetheless, Van Zyl (2009) illustrates that in some situations these technologies can be counterproductive i.e. the same perceived positives could turn into perceived negatives. For instance instead of increasing productivity they may lead to a decrease in productivity due to employees spending too much time posting and networking in blogs and wikis. McAfee (2006) raises a similar point there is a threat that knowledge workers will either not use these technologies due to their busy,

demanding schedules or use them but they do not produce the intended outcomes. Furthermore, while user generated content could be an advantage but the reliability of this content is not guaranteed (Van Zyl, 2009). Moreover, the efficiency of these information and communication technologies is questioned in terms of the bandwidth and server required and network utilisation (Van Zyl, 2009). Issues of security, trust and privacy, knowing what, how much, when and how to share may also surface (Dzamic, 2009; Lavenda, 2008; Middleton, 2008).

Nonetheless, with the strikingly high adoption rate of web 2.0 technologies (e.g. 13,000 business profiles in face book) and the benefits of web 2.0 technologies, scholars argue that change is inevitable (Sinclair, 2007; McAfee, 2006; Schneckenberg, 2009; Martin et al., 2009; Paroutis and Saleh, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Arguably having used web 2.0 technologies at a personal level, knowledge workers and employees are demanding applications and information system tools that are more intuitive, interactive and user-friendly. In addition, access to tools that allow easier communication and collaboration between themselves, stakeholders and customers and a greater customisation of user experience (Dzamic, 2009; Lavenda, 2008; Middleton, 2008).

Hence, it is argued that organisations are unable to prohibit the use of social networking technologies or turn a blind eye (Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Instead, organisations need to come up with procedures and policies (Martin et al., 2009; Sinclair, 2007) in which they can tap into the benefits of enterprise 2.0 technologies without compromising issues of security and trust. This will be elaborated on in the next section.

## **Enterprise 2.0 Challenges and Opportunities**

Martin et al. (2009) emphasises the need for policies and procedures to guideline the use of these enterprise 2.0 technologies, whether they were laid out lightly such as the case of Microsoft ('do not write anything on blogs that would get you into trouble') or in a formal manner such as the UK Government Communications Network's Review of Social Media (See appendix 1). Another example is from IBM's social computing guidelines that encourage the use of web 2.0 and enterprise 2.0 (see appendix 1).

Due to the novel nature of these technologies and their recent emergence in the business environment, there is a gap in the literature in terms of standardized policies and procedures to use. However, there seems to be a consensus that for organisations to succeed in incorporating these technologies there should be some kind of guidelines (Sinclair, 2007; Martin et al., 2009).

In addition to the policies and procedures, to ensure the successful implementation of these technologies there are number of factors that need to be present. The role managers should take in introducing these new set of technologies should not be under-estimated (McAfee, 2006; Schneckenberg, 2009; Martin et al., 2009; Paroutis and Saleh, 2009). While previous technologies such as emails did not require managers to encourage the use of, they cannot also look into people's shoulders and tell them 'tag this or make a link or now blog about what you just did' (McAfee, 2006). However, as easy to use and intuitive (Schneckenberg, 2009) the enterprise 2.0 technologies are, they depend profusely on the decisions and actions taken by

managers (McAfee, 2006). A study conducted by Paroutis and Saleh (2009) of key determinants of knowledge sharing using enterprise 2.0 tools revealed that the managerial role in adopting these technologies is significant. They argue that managers should be an active role in supporting enterprise 2.0 technologies, considering it as a strategic knowledge management initiative. In return communicating its benefits to employees, training and equipping them with the necessary set of skills and rewarding them for embracing them, for instance the “top rated blog” award or the “most active blog” or “best wiki contribution”.

On a similar note, Schneckenberg (2009, p.509), identifies that there is a potential for enterprise 2.0 technologies to facilitate the process of organisational learning and knowledge exchange but that depends on the “openness, freedom and employee empowerment in corporate environments”. He enlists empowerment to be a key factor for corporate innovation and for the use of enterprise 2.0 technologies to enable knowledge and ideas exchange and organisational learning. The main challenge though is “the managerial task of balancing those inherent process inconsistencies that evolve between top down control and bottom up empowerment in period of intense organisational change” (Schneckenberg, 2009, p.517).

This leads to another important factor, providing a receptive culture (McAfee, 2006) one that encourages new collaboration practices and having a common platform. For instance one large wiki is better than many unconnected ones, for a common platform encourages collaboration and knowledge sharing (McAfee, 2006).

This chapter have characterised the already existing information and communication technologies for knowledge management, highlighted their positives and negatives. In addition, the latest wave of interactive knowledge management technologies,

known as social networking tools were introduced. The potential of these tools was explored and the anticipated challenges. These tools were further examined using the Abu-Dhabi Municipalities case study to increase the understanding of what these tools can offer to the knowledge management field.

## **Research Gap, Significance and Objectives**

The knowledge-based view of the firm (Grant, 2002; Halawi, et al., 2005; Spender, 1996) identifies knowledge as a resource for sustainable competitive advantage (chapter 2). Therefore, many organisations are striving to find means to facilitate knowledge transfer and management (chapter 3). Information and communication technologies were identified as potential tools that can facilitate this process of knowledge transfer and integration (Alavi and Leidner, 2001; Jashapara, 2011; Fernandez et. al., 2004) (chapter 4). Nonetheless, thus far it is argued that in many instances, information and communication technologies fell short in delivering the perceived benefits (Hahn and Wang, 2009). This has often been attributed to negligence of the 'people' dimension of knowledge management systems and solutions.

Recently, with the development of the web services and tools a set of interactive tools have made their way to organisations and consequently, the knowledge management literature. Arguably, these tools rely on the human side aspects to enhance knowledge management within organisations (Paroutis and Saleh, 2009). These technologies that have manifested themselves in the form of social networking tools are increasingly being used by organisations to create, store, and share knowledge within a natural setting (Jashapara, 2011).



A review of the research conducted since the emergence of social networking tools for knowledge management reveals that most of the current research papers are conceptual or view point papers and current research emphasises what social networking is, how are they structured and why social networks exist (van Zyl, 2009). However, studies that examine the implementation of social networking tools in organisations for knowledge management and sharing are limited (Paroutis and Saleh, 2009; van Zyl, 2009). In addition, the majority of the research conducted on the value and opportunities of these tools are based upon private organisations such as: Clearswift, IBM, KPMG, Gardner and MessageLabs (van Zyl, 2009).

This thesis aims to examine the implementation of social networking tools for knowledge management. It investigates how social networking tools are being applied for knowledge management and whether these tools can facilitate the process of knowledge sharing and management. In addition, the research will examine the factors that contribute to or prohibit the usage of these tools for knowledge management. The findings will be examined in light of the theoretical framework adopted as part of this study, the knowledge-based view of the firm. Implications on the academic literature and practice of knowledge management will be highlighted. The research questions that guided this research and maintained its direction are:

- Can social networking tools enhance the process of knowledge transfer and management? If so, how?
- Why do knowledge workers decide (or not) to use social networking tools for knowledge management? What factors influence their decisions?

The next chapter outlines the methodology that guided this research process, the research design and how the research questions were addressed.

## Chapter 5- Research Methodology and Method

It has been established in earlier chapters that an organisation's ability to transfer knowledge and utilise it to implement organisational goals have been identified as important and even critical for achieving competitive advantage (Chapter 2 and 3). Nonetheless, the transfer of knowledge can be quite difficult to achieve (Chapter 2 and 3).

Traditionally, organisations have been using ICTs to facilitate the diffusion and integration of knowledge. However, many organisations are not getting the full value on their investments on ICTs for KM (Chapter 4). Research (Hahn and Wang, 2009; Hislop, 2005) indicates this can be attributed to the design of ICT tools for KM. The focus has been primarily on the codifying knowledge, rather than enabling people to actively infer and construct meaning (Chapter 4). Lately, a new set of interactive technologies, taking the form of social networking tools are making their way to knowledge management. Nonetheless, our understanding of the implementation of these tools for KM and the dynamics they introduce when applied is still limited (Chapter 4).

What is needed is to consider the use of information and communication technology tools which allows for interactive usage and an in-depth study of the usage of social networking tools for the capture, transfer, and integration of knowledge. As a result, two fundamental research questions emerged, firstly, how can social networking tools enable the knowledge management process? Secondly, why do knowledge workers decide (or not) to use social networking tools for knowledge management? What factors influence their decisions?

Henceforth, once I have completed the literature review and identified gaps in the literature, I had to make important decisions in terms of how to answer the research questions, the research process I need to take and how can I ensure collecting quality data to reach to credible findings. This was achieved by clearly defining the research objectives and adopting the research design that will enable me to best fulfil these objectives. My research design informed my data collection techniques and my data collection techniques informed my data analysis. I have chosen to adopt a qualitative; case-study design given the limited number of studies on social networking tools for knowledge management and the almost non-existent knowledge management literature in the UAE context. Hence, the qualitative case study design enabled rich and in-depth data to emerge.

These considerations and further ones on the research foundations, processes and methods used are described in this chapter, starting with: the research philosophy governing this study, the research questions and case study research design, the unit of analysis, scope of the case, the type of the case study, case study organisation overview, data sources and collection and finally, data analysis and credibility.

### **Research Philosophy**

Research philosophy describes the ontological and epistemological assumptions underlying the research approach. Ontological assumption is concerned with the nature of reality. The two main aspects of ontology in the business and management research are objectivism and subjectivism (Bryman and Bell, 2007; Saunders et al., 2009). Objectivists believe that social entities exist independently of social actors and they approach their research in the same manner. Subjectivists on the other hand, view reality as socially constructed, i.e. they believe a social phenomenon is

created from the perceptions and consequent actions of social actors (Saunders et al., 2009). Objectivists tend to focus on measuring findings while subjectivists concentrate on understanding the meaning that individuals give to a social phenomenon.

Epistemological assumptions define what constitutes acceptable knowledge in the field (Bryman and Bell, 2007; Saunders et al., 2009). There are two main epistemological positions in management and business research: positivism and interpretivism (Thomas, 2011). Positivism is derived from the philosophy of science and encourages the use of natural sciences methods to the study of social reality. Positivists believe that only 'observable' phenomena can provide credible data. Theory is used to produce hypotheses that can be tested and in return will allow explanations and evaluations (Bryman and Bell, 2007). The focus is on generalizations (Saunders et al., 2009).

Interpretivism is substantially different from positivism as interpretivists believe that reality is socially constructed (subjective) as opposed to believing that reality just exists independently of social actors (objective). The focus is on the details of the situation, what is the reality behind these details and the 'subjective meanings and motivating actions' (Saunders et al., 2009, p.119). The goal of this research is not to 'explain human behaviour but to understand it' (Maylor and Blackmon, 2005, p.157).

Constructionism is an epistemological position that shares aspects of interpretivism, the belief that reality is socially constructed (subjective) but does not reject outright some notion of objectivity. The emphasis is on the collective construction of social phenomena (Maylor and Blackmon, 2005) and this position 'recognises the importance of the subjective human creation of meaning' (Miller and Crabtree, 1999,

p.10). The positive of this position is the close collaboration between the researcher and the participant, allowing the participants to tell their stories (Miller and Crabtree, 1999). Whilst telling their stories the research participants are given the opportunity to describe their views of reality and this allows the researcher to better understand the participants' actions (Robottom and Hart, 1993; Lather, 1992; Baxter et al., 2008).

For this research purpose, I adopted a subjective ontology and a constructivist epistemology. In this case, reality is viewed as socially constructed and listening to the stories of the participants will enable me to understand the participants' actions. This research position was selected given the importance of understanding the constructs and context (organisations) of the phenomenon being investigated (social networking tools for knowledge management) and the importance of understanding the meaning and interpretation research participants associated with the examined phenomenon (social networking tools for knowledge management). In addition to the flexibility this approach provided in adopting multiple research methods to understand the phenomenon. The research philosophy governs the choice of research design and methodology; these will be discussed and justified in the coming sections.

### **Research Questions and Case Study Research Design**

It is important to define the research questions, design and strategies as they provide an overall framework for how the data will be collected and analysed (Bryman and Bell, 2007). The research questions that guided this research are:

- Can social networking tools enhance the process of knowledge transfer and management? And if so, how?

- Why do knowledge workers decide (or not) to use social networking tools for knowledge management? What factors influence their decisions?

This research adopted a case study research design, according to Yin (2011) a case study research design is used in four situations. Firstly, when the study aims to answer 'why' and 'how' questions. Secondly, a case study research design is helpful when the researcher cannot manipulate the behaviour of the participants of the study. Thirdly, the case study research design is useful when the researcher would like to consider contextual conditions as he/she believes that they are relevant to the phenomena. Finally, case study research design is used when there is no clear boundary between the context and the phenomenon and the researcher wants to focus on contemporary events as opposed to historical events.

The case study research strategy was deemed to be the most suitable for case studies are particularly suitable for answering 'how' and 'why' questions and the aim of this study was to understand how knowledge workers perceive social networking tools for knowledge management. The study aimed to explain also why employees decide to use (or not) these social networking tools. Furthermore, since the case is the decision-making process of employees on whether to use these tools at their work premises, the case could not be considered without the context, the organisation. It would have been impossible to have a true picture of the employee decision-making process without considering the context within which it occurred. In addition, this research lends itself to the case study research design since it focussed on contemporary events.

### **Determining the Unit of Analysis**

Before moving forward and when considering the research questions, it is important to consider what the unit of analysis is (Miles and Huberman, 1994). Asking the

question ‘what do I want to analyse?’ and answering this questions leads to the identification of the unit of the analysis, whether it was an individual, a program, a process, an organisation or the difference between organisations (Baxter et al., 2008). Thomas (2011) uses the metaphor of a capsule with two halves to describe a case study, with the first half containing a subject (the place or person) and the other half an analytical frame or object. Each ingredient is necessary in order for the other half to work and the case is not complete without both parts in place. Wieviorka (1992, p.160) shares the same view indicating

*“For a case to exist, we must be able to identify a characteristic unit.. This unit must be observed, but it has no meaning in itself. It is significant only if an observer. Can refer it to an analytical category or theory. It does not suffice to observe a social phenomenon, historical event, or set of behaviours in order to declare them to be ‘cases’. If you want to talk about a ‘case’, you also need the means of interpreting it or placing it in a context”*

For instance a hospital ward on its own is not a case study; however an analysis of why it is thought to be an outstanding ward could be a case. In this research, the organisation or employees are not considered on their own, an analytical framework of the beliefs of employees towards social networking tools and their decision-making process on whether to use social networking tools or not were examined.

It is important that the case study research questions correspond to the unit of analysis being examined (Baxter, et al., 2008; Yin, 2003). Table 6 demonstrates the link between the research questions and the case examined in this research.

Case Study Research Question	The Unit of Analysis
Do knowledge workers <i>believe</i> that social networking tools can enhance the knowledge management process? How?	The <i>beliefs</i> of knowledge workers towards social networking tools for knowledge management
Why do knowledge workers <i>decide</i> (or not) to use this tool for knowledge management? What factors influence their <i>decisions</i> ?	The <i>decision-making</i> process of knowledge workers whether to use the tools or not. The <i>factors</i> that contribute to their decisions.

Table 6: Research Question and Unit of Analysis

### **Scope of the Case**

Once the case is determined it is important to consider what the case will NOT be (Baxter, et al., 2008). One of the most common problems that occur with case study research is the tendency for researchers to try and answer a very broad question or the objectives of the study are too many to achieve on one study (Baxter et al., 2008). Several authors suggested that putting boundaries on a case will prevent this problem from occurring (Yin, 2003; Stake, 1995). Creswell (2003) suggests binding the case by time and place while Stake (1995), recommends time as well and adds activity to it. On the other hand, Miles and Huberman (1994) recommend binding the case by definition and context. Once the case is bound, the scope of the research becomes manageable.

In the case of this research, established boundaries included a clear and specific definition of social networking tools, what they entailed and the knowledge-based view of the firm, shedding light on knowledge management in organisations. The period of time and activity that this research is interested in examining was the early implementation phase of the social networking tools for knowledge management and the context was limited to the case study organisation selected.

### **Qualitative / Quantitative Case Study**

Once the case study research design is selected, a decision on if the case study would be quantitative, qualitative or a mix of both should be made. Case studies are known to lend themselves to both quantitative and qualitative studies. The choice of which type to choose depends on the ontological and epistemological foundations, the purpose of the research and the research questions.

The case study implemented in this research is of a qualitative design, for my aim was to get an in-depth understanding of a single context and tap into the meanings



and experiences knowledge workers have identified through their use of social networking tools for knowledge management. This choice is further reflected in later sections such as the type of case study chosen and the methods used to collect the data.

### **Determining the Type of Case Study**

Once established that the research questions lends itself to qualitative study and the case is determined and bound, the type of case study needs to be defined. The decision on what type of case study to adopt depends on the overall study purpose (Baxter et al., 2008).

Different authors use different terms to describe the variety of case studies. Yin (2003) identifies three types of case studies exploratory, explanatory and descriptive. The decision of which case study type to select depends on if the research is looking to explore, explain or describe a phenomenon. Each of these types is defined in table 7.

<b>Case Study Type</b>	<b>Definition and Purpose</b>
<b>Exploratory Case Study</b>	This type of case study is used when there is no or little data about the observed phenomenon or when the phenomenon being observed has no clear set of outcomes (Yin, 2011).
<b>Explanatory Case Study</b>	This type of case study is valuable when trying to understand why and how a phenomenon occurred. 'It is used to explain the presumed casual links in real-life interventions that are too complex for the survey or experiment to capture.' (Yin, 2011; Baxter et al., 2008, p.547).
<b>Descriptive Case Study</b>	This type of case study is used to answer the question of 'what is happening?' or 'what has happened?' It is used to describe a phenomenon and its real-life context (Yin, 2011).

**Table 7: Types of Case Study**

While each of these types of research studies serve a different purpose, it is not unusual that a single research has more than one purpose (Saunders et. al 2009). Hence, a single research can start as an exploratory research and then as the research develops expands to an explanatory or descriptive research (Bryman and Bell, 2007) or a single research can be both descriptive and explanatory (Saunders et. al 2009).

The phenomenon of social networking tools for knowledge management could be examined in an exploratory, explanatory and descriptive manner. For instance an exploratory study could be conducted to examine what are the outcomes of introducing a new wiki to facilitate knowledge sharing in an organisation. This would be a vital first step before deciding whether to embrace the wiki social networking platform or not. An explanatory study on the other hand would focus on why and how the wiki platform had worked (or not). Lastly, a descriptive study would describe the wiki platform when applied in real-life context.

In this research, the exploratory and explanatory research purposes deemed the most suitable. It started as an exploratory study and then eventually as an explanatory study as the research developed. This research lent itself to exploratory research since the number of studies addressing social networking tools for knowledge management is limited (Van Zyl, 2009) and the objective is to seek new insights on how could social networking tools enable the knowledge management process. Moreover, an exploratory study was adopted given that the context of this study is a government organisation and the number of studies examining social networking tools for knowledge management in a government context is few (Paroutis and Saleh, 2009). In addition, none of these studies are based on a UAE

government organisation. Henceforth, this study will enable the assessment of the phenomena in a new light.

This study has also adopted an explanatory case study approach; this type of case study is useful in assessing how an intervention is working and why. The methodology verifies whether there are problems and if modifications are needed in the intervention, and attempts to explain the causal effects found. In essence, this research attempted to explain the effect of applying social networking tools for knowledge management from a knowledge worker perspective and why did they decide (or not) to use these tools for knowledge management. The explanatory case study deemed to be suitable in this research for very few studies are published to explain the causal link in a real-life context (Paroutis and Saleh, 2009) as opposed to the many descriptive studies that have identified what social networks are, why they exist and how they are structured (van Zyl, 2009; Schneckenberg, 2009; Levy, 2009). This study aimed to explain the dynamics of applying web technologies for knowledge management. Hence, this research aimed to fill this gap in the literature and in return contribute to the knowledge management body of knowledge.

### **Single or Multiple Case Study Designs**

Once the 'case' has been identified and the specific 'type' of case study is determined, it is important to consider the design of the case study, whether a single case study is most effective to better understand a phenomenon or a multiple case study (Yin, 2011; Baxter et al., 2008).

Yin (2003) identifies four different types of case study design: single-case (holistic), single-case (embedded), multiple-case (holistic), multiple-case(embedded). See figure 5 below.

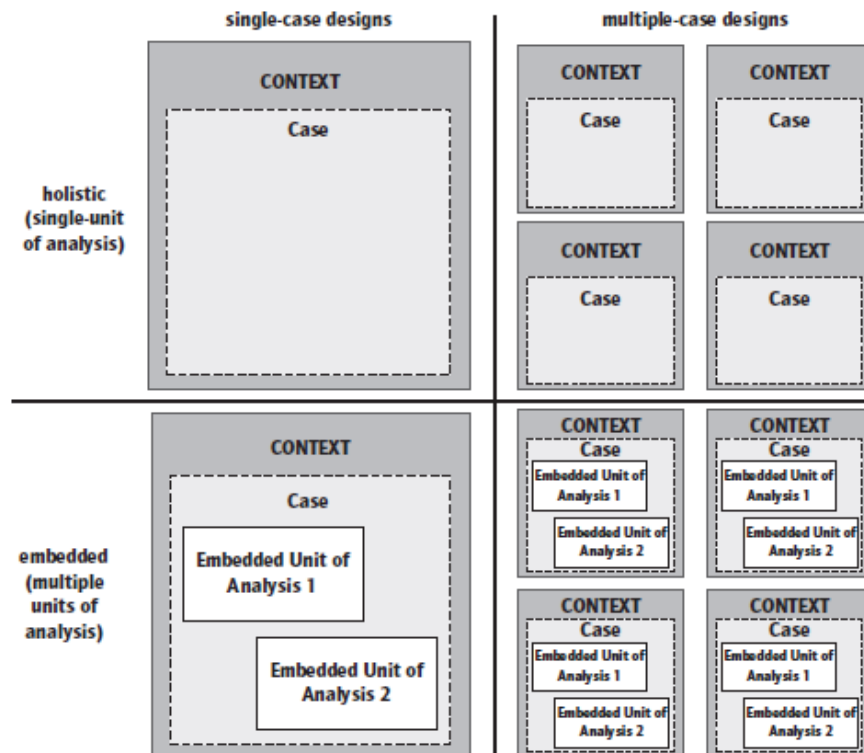


Figure 5: Basic Types of Designs for a Case Study

The choice of which case study design to adopt depends on the purpose of the research. Yin (2003) provides five rationales for the use of a single case study design:

1. When the case represents the critical case in testing a well-formulated theory:  
This was a single case study contributes to knowledge and theory building.  
Single case studies can assist in refocusing future research in a whole field.
2. When the case exemplifies an extreme or a unique case: This way a single case study sheds light on an unusual phenomenon and opens doors for future research in the area.
3. When the case is a typical case: This way the lessons learned from these cases are believed to be informative about the experiences of the average

person or organisation. The objective is to capture the circumstances of a common situation.

4. When the case is revelatory case: This way a researcher has an opportunity to access a situation that exists but was not accessible to scientific investigation.
5. When the case is a longitudinal case: This way a researcher examines the same single case but at two or more different points of time.

There are two types of single-case designs: holistic and embedded units. The holistic single-case design is used when the research examines one unit of analysis. It is used when the case is unique or an extreme situation. The single-case study design with embedded units is used when you are interested in observing the same issue but across different sub-units. This type of design is powerful for it enables the data to be analysed 'within the sub-units (within case analysis), between the different sub-units (between case analysis), or across all of the sub-units (cross-case analysis). The ability to engage in such rich analysis only serves to better illuminate the case' (Baxter et al., 2008, p.550).

Multiple-case design occurs when the same study includes more than a single case (Yin, 2003). This type of case study design is often associated with multiple experiments. The cases are being examined to understand the similarities and differences between each other. The rationale behind using this type of design is to 'predict similar results (replication) or to predict contrasting results but for predictable reasons (a theoretical replication)' (Yin, 2003, p.203).

A holistic multiple-case design can be used when a single unit of analysis is observed in various contexts and an embedded multiple-case design can be adopted

when the researcher is examining a case in different contexts with multiple units of analysis (Yin, 2003, p.203).

I chose a single case study design given the uniqueness of the case study selected and since the objective of the thesis is to collect, in-depth, rich data about the studied phenomenon. Moreover, the single case study included embedded units to allow rich analysis and comparison. A background of the case study examined in this thesis, the embedded units studied and its uniqueness is discussed in the next section.

## **The Case Study Organisation Overview**

### **Introduction**

In line with the vision of His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the United Arab Emirates and Ruler of Abu-Dhabi, and the guidance of His Highness Lt. General Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu-Dhabi and Deputy Supreme Commander of the Armed Forces, and Chairman of the Abu-Dhabi Executive Council, knowledge development objectives have been embedded in the public policy agenda and the future vision for the Government of Abu-Dhabi. The Abu-Dhabi Government public policy agenda (2007-2008) is a comprehensive guide that highlights the main goals and objectives across all portfolios of government. It is the result of a 12 months intensive study and collaboration across all different government entities. The public policy is thorough and the first to be published in the region. It defines specific priorities and communicates a detailed plan for each portfolio of the government in Abu-Dhabi. Each member of the executive council signed a statement that is included in the government public policy agenda as a sign of commitment to deliver on the Emirate's vision for the future. The Government Policy Agenda will be updated as required.

Government entities in Abu-Dhabi were mandated to incorporate the latest knowledge management practices and tools contributing towards the vision of the government of Abu-Dhabi (to be one of the world's leading governments and to create a sustainable knowledge economy). The Department of Municipal Affairs (DMA) took the lead and is the first government entity to launch a knowledge management framework in collaboration with Abu-Dhabi, AlAin and Western Zone municipalities.

### **About DMA**

The Department of Municipal Affairs (DMA) was established in May 2007 and it acts as a hub for all municipal planning and foresees all the public work projects in the Emirate of Abu-Dhabi. The DMA is a regulatory body and oversees the three regional municipal councils, including: Abu-Dhabi Municipality, Al Ain Municipality and the Western Region Municipality. The main objective of the DMA is to facilitate efficiencies and higher customer satisfaction, in return contributing to the national public policy agenda that aims to present a new era in municipal services to the general public. The vision of the DMA is to provide *“an advanced municipal system that enables sustainable development and enhances quality of living for the Emirate of Abu-Dhabi”* and the mission is:

*“to achieve the Abu-Dhabi Government’s objective of providing distinctive municipal services that enhance the quality of living of all residents through coordination, oversight and monitoring of the Abu-Dhabi municipalities and municipal councils”*

*(Source: Department of Municipal Affairs 2012, p.2)*

Knowledge sharing is identified as one of the DMA's eight key values in which the aim is to motivate municipalities to learn and share best practices on a global

regional and local scale. Establishing effective coordination and knowledge sharing between municipalities is one of the areas that the DMA assesses its performance through.

### **DMA and Knowledge Management**

In November 2008, the DMA sent a delegation to visit the UK and investigate how Knowledge Management works in other government organisations. The delegation observed how knowledge management enabled the success of the National Health Service's programme, one of the largest civil programmes implemented in the world. Ali Al Yafeai, DMA's division manager that led this delegation concluded "knowledge management is essential to support the strategic goals of the DMA and Municipalities. We hope for it to be a successful pilot project that would be adopted by other government entities across the Emirate in the near future." The DMA decided to implement knowledge management for the following reasons:

- Bring together people and information through Communities of Practice
- Encourage new ways of working, making knowledge sharing business as usual
- Provide data standards for performance reporting
- Build quality into the system, using common standards and secure processes
- Create an environment which encourages continuous learning and development
- Help to drive economic growth
- Provide better services to customers
- Only source of sustainable economic development

*(Source: Department of Municipal Affairs, 2012)*



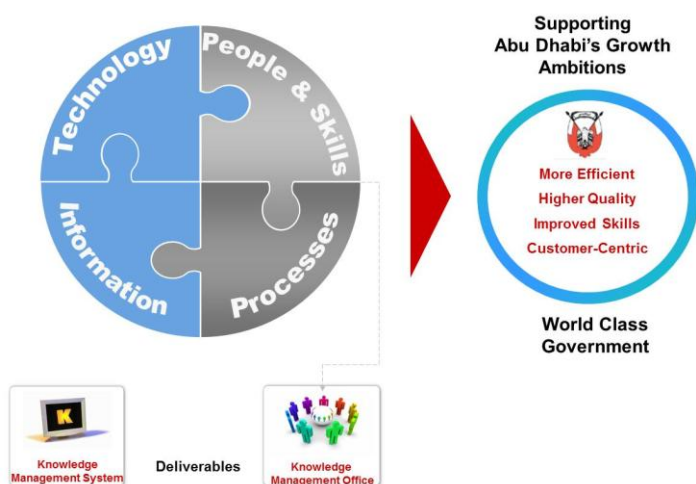
The aim was to develop a framework that captures, stores, disseminates and encourages the sharing of valuable knowledge assets. This all led to the launch of a Knowledge Management (KM) framework – ‘Musharaka’.

### **‘Musharaka’ Knowledge Management Framework**

The project, named “Musharaka - Excellence through Knowledge” is a result of collaboration between the Department of Municipal Affairs (DMA) and the Abu-Dhabi, Al Ain and Western Region Municipalities (a total of 5000 employees across all entities). The word Musharaka in Arabic means participation.

“Musharaka...Excellence through knowledge” is an initiative that aims to help share and use information and knowledge in a way that improves day-to-day work. Its purpose is to enable the DMA and Municipalities to share information with each other, so that they can and learn from their own best practices and from world-class knowledge.

The idea behind the framework is to bring technology, people, information and processes together to provide a more efficient, higher-quality, skilled and customer-centric service, and as a result contribute towards the vision of Abu-Dhabi to be a world class government. This process is management by the knowledge management office and enabled by knowledge management systems (Figure 6).



**Figure 6: Musharaka Framework Main Components and Deliverables**

(Source: Department of Municipal Affairs, 2012)

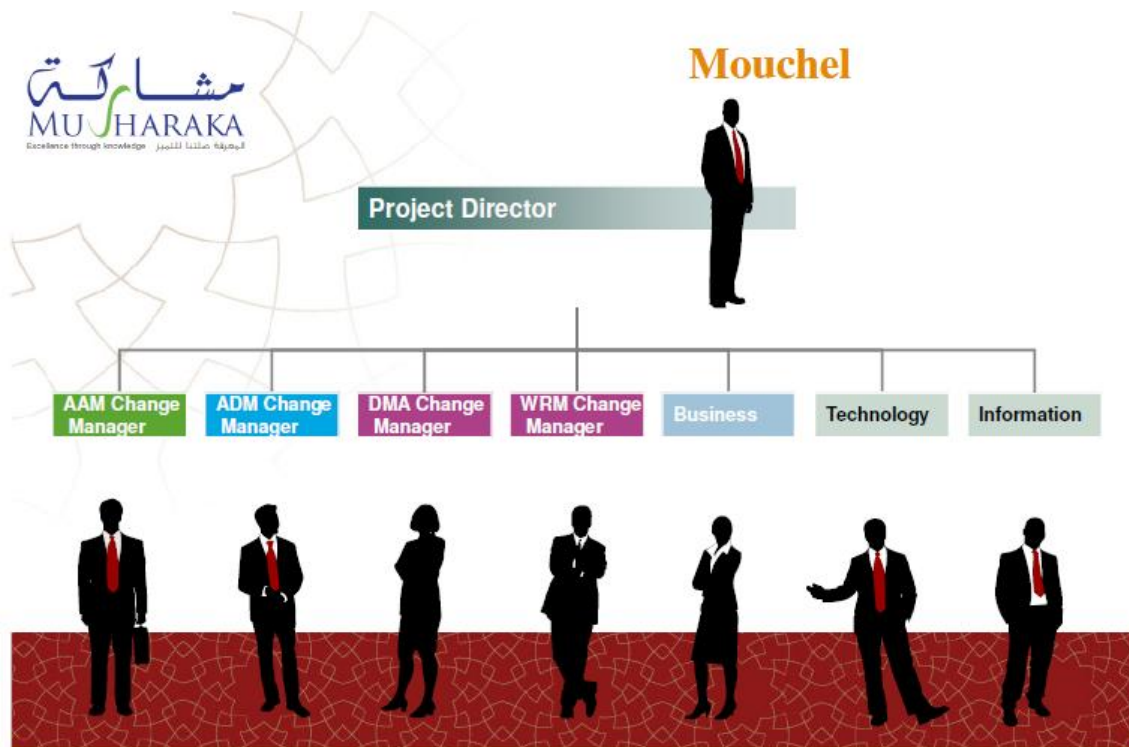
It is argued that the framework will not only benefit the DMA but also the employees working at the DMA and municipalities. The framework is designed to benefit both employees and the DMA overall. See figure 7.

**Figure 7: Benefits to Employees and DMA (Source: DMA, 2012)**

For Employees	For DMA
➤ Increased job satisfaction by having the right information easily accessible	➤ Improved information available to customers via a number of sources
➤ Ability to share your knowledge and experiences with others	➤ Improved project delivery via KPIs & dashboards
➤ Improved career prospects via upskilling and knowledge transfer from consultants and suppliers	➤ Enhanced cost control through supplier management KPIs
➤ Build relationships with other divisions and entities	➤ Increased staff morale and retention
➤ Learning from past activities, leading practices and benefit from the review of your peers	➤ Efficient processes and procedures
	➤ Cross-entity knowledge transfer and sharing good practice

Mouchel Management Consulting has been contracted to foresee the development of the “Musharaka” system. The choice of consultant was a result of the DMA delegation visit to the UK, in which compared to all the knowledge management frameworks the delegation explored, the framework developed by Mouchel resembled more what the municipalities was looking for. In particular, the municipalities were searching for a collaborative platform that enables the interaction between different employees from across municipalities, locating of expertise and accessing of templates and documents.

Mouchel assigned a change manager to the DMA and each of the municipalities and overall there was a person in charge of the business concept, technology and information aspects (Figure 8).



**Figure 8: Role of Mouchel and the Team**

*(Source: Department of Municipal Affairs 2012)*

Prior to the start of the project Mouchel conducted an assessment study on the DMA and each of the municipalities, it was called 'knowledge readiness'. They examined six areas towards knowledge of the DMA and each municipality: awareness, willingness, skills, process, systems, and culture. The results of each area varied across each municipality.

The framework is based on Microsoft SharePoint capabilities including web technologies such as: blogs, wikis, RSS, collaborative space and etc. Figure 9 demonstrates the main components of the framework.



Figure 9: Main Components of Musharaka

(Source: Department of Municipal Affairs 2012)

The focus will be on the communities of practice and collaboration forums as they are the components that contain the social networking elements.

### Musharaka Communities of Practice

The idea behind the communities of practice is to bring together group of employees from within the same municipality and across municipalities to communicate using different technological tools (Roberts, 2006; Wenger, 2004).

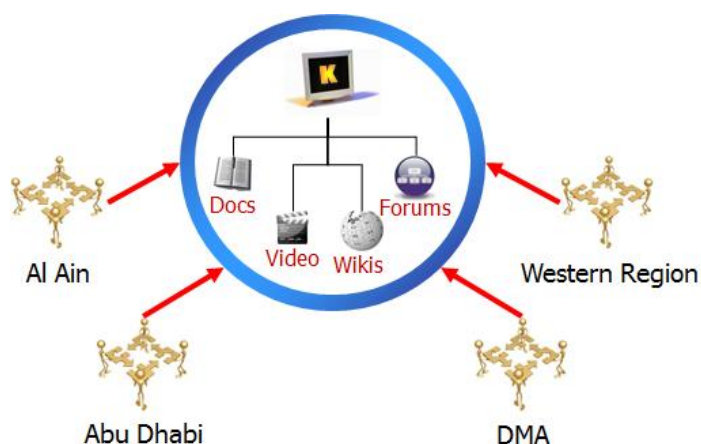


Figure 10: Musharakah Communities of Practice

The homepage of all communities is consistent. The individual content and tools made available (e.g. Wikis, Blogs etc.) will vary on the scope of Community as decided by the Community Leader. The homepage also provides: a list of the Community members, a list of the Community Administrators, details of the Terms and Conditions specific to the Community a quick-link to the Musharaka homepage.

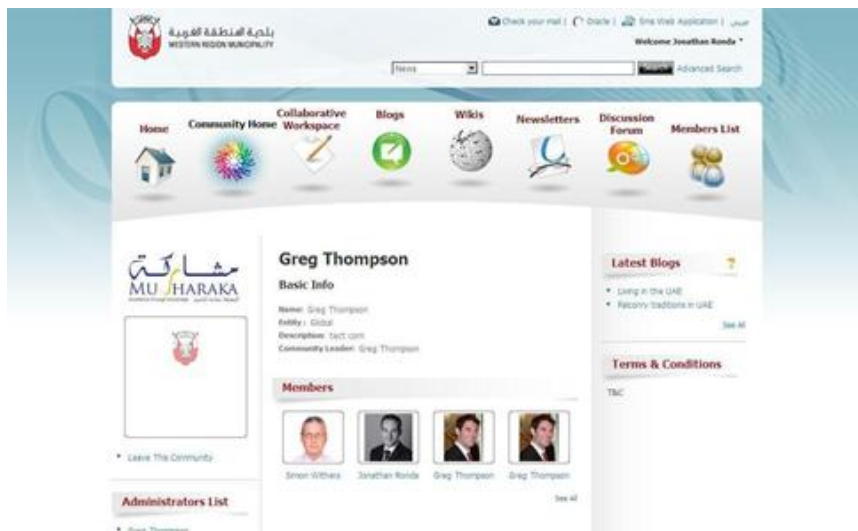


Figure 11: Musharaka Front Page

There are two types of communities that the Musharaka framework adopts, the communities of practice and the communities of interest. Community of practice is established for employees who work within the same area and the community of interest are established for employees who share a common interest in a specific topic. The DMA applied the communities to achieve the following benefits:

- Allow members to make new contacts, keep up-to-date, generate new knowledge and share experience
- Enabling sharing of learning and good practice
- Providing a forum for sharing documents, building a repository of knowledge, resources and best practice case studies

- Providing a non-threatening forum for discussing issues, testing ideas, acting as a sounding board, developing joint projects

The common characteristics of communities are:

- Team members are volunteers, members should not be forced to belong or contribute
- Community Leaders and Admins undertake the role in addition to their 'day jobs'
- Members are multifunctional representing a range of skills and knowledge within the scope of the Community
- Members are enthusiastic and have a passion for making a real change to the subject area
- Communities need to do real work and not just be a 'talking shop'

*(Source: Department of Municipal Affairs 2012)*

The social networking tools that enable the communication will each be discussed below and they will form the basis for this study. In addition embedded social networking tools such as tags, RSS, slogs and extensions were embedded as part of the Musharaka framework. The first live deployment of these tools started in 12 January 2011 with 18 communities of practice established across all municipalities.







	Tool	Description
	Collaborative Workplace	<b>A collaborative workspace</b> is a special working environment where all participants can access the same documents / folders. It allows users in varying geographic locations to collaborate dynamically and share ideas
	Blog	<b>A Blog</b> is a type of website, usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video.
	Wikis	<b>Wikis</b> are web pages that can be edited and amended by viewers of the pages. Wikis enable users to contribute content freely to build up a Knowledge Base specific to the Community.
	Newsletters	<b>Newsletters</b> can be produced to highlight key events, projects or activities its members have been involved in. These can then be posted on the Community pages for sharing.
	Discussion Forums	<b>Discussion Forums</b> are an online discussion site, providing an easy and informal mechanism for people to ask questions. They can also cultivate new ideas through posting questions and stimulating discussion
	Members list	A <b>list</b> of all members of the Community is provided as well as a link to their entry in the People and Skills Directory

Figure 12: Musharaka Social Network Community Tools

This case study organisation was selected for its uniqueness, it is the first knowledge management framework to be launched across all government entities in Abu-Dhabi and if this pilot project deemed successful it would be adopted by other government entities across the Emirate. Moreover, it features the latest web technological platform combined with cultural and people-trend factors to enhance employee performance, productivity and ultimately boost customer service. Having chosen this case study, I had an opportunity to research a situation that existed (application of

social networking tools for knowledge management) but with limited access to scientific investigation and explored and explained some causal links regarding the subject matter. In return, this enabled shedding light on the phenomenon and the refocusing of future research in this field.

Different sites were needed to enrich the research and in order to develop comparative analysis; hence, the study included embedded units. This was achieved by the researcher examining all three branches of the government organisation, in Abu-Dhabi, Al-Ain and Western Zone, in addition to the DMA, the governing body of all the three branches. The next section, describes the data sources that I have used and the different data collection methods I applied to derive the findings.

### **The Pilot Case Study**

In order to prepare for data collection, it is beneficial to conduct a pilot study. The pilot study enables the refinement of the data collection plans in terms of the content of the data and the procedures to be followed (Yin, 2011). There are different criteria's that contribute to the selection of the pilot study, mainly: geographic proximity, accessibility, and convenience (Yin, 2011). This enables a less structured and more extended relationship to develop between the interviewees and the case study investigator.

In this thesis the Department of Municipal Affairs was chosen for the pilot case study. This branch of the municipalities has been selected for the pilot case study given that they are in charge of the Musharaka framework implementation across all the different municipalities and they are the governing, regulatory body of the Musharaka framework. Hence, it deemed best to choose them as a pilot study for they have a comprehensive knowledge of the Musharaka framework. In addition, the Department of Municipal Affairs was selected given its close proximity; it is at the heart of the city



Abu-Dhabi. Moreover access to the sites was made easy by some prior personal contact and the interviewees at the sites also were congenial to the notion that I was at an early stage of the research and would not have a fixed agenda.

The nature of the pilot study inquiry was as such as to improve the conceptualisation of the different type of social networking tools applied at the municipalities and their related organisational effects. The pilot study was done before selecting the specific technologies for the final data collection and before the final articulation of the study's interview questions. Therefore, the pilot study of the Department of Municipal Affairs provided considerable insight into the basic issues being studied. This information was used hand-in-hand along with an on-going relevant literature review; in return the final research design was established on the basis of both prevailing theories and by a fresh set of empirical observations. The combination of these twofold sources of information aided in ensuring that the actual study reflected crucial theoretical issues in addition to questions that are relevant to the contemporary case.

In terms of the methodology, the pilot case study research conducted at the Department of Municipal Affairs provides information about the relevant field questions and the logistics of the field inquiry. With regard to the technologies, important logistical questions included what social networking tools were implemented as part of the Musharaka framework, at what phase of the implementation are these tools and whether to observe the tools in action first or to collect information about the prevalent organisational issues first. This helped identify that the social networking tools belonged to the community of practice part of Musharaka, hence, the focus of the research was on the community of practice aspect of the Musharaka framework are particularly on the following tools:

Collaborative Workspace, Blogs, Wikis, Newsletters, Discussion forums, Members list, Tags, RSS and signals. In addition, the pilot study helped identify the scope of the study which was on the initial implementation and the tools were examined concurrently with the organisational issues they imply. As a result of these processes, a satisfactory procedure was developed for the formal data collection place.

## Data Sources and Collection

One of the key advantages of adopting a case study design methodology is the ability to use multiple data sources that in return increases data credibility (Thomas, 2011; Yin, 2003). The six most commonly used (but not limited to) methods for data collection in case studies include: documentation, archival records, interviews, direct observations, participant-observation and physical artefacts (Yin, 2011). Table 8 encompasses the six sources of evidence and the strengths and weaknesses of each.

<u>SOURCE OF EVIDENCE</u>	<u>STRENGTHS</u>	<u>WEAKNESSES</u>
<b>Documentation</b>	<ul style="list-style-type: none"> <li>• stable : repeated review</li> <li>• unobtrusive : exist prior to case study</li> <li>• exact: names etc.</li> <li>• broad coverage: extended time span</li> </ul>	<ul style="list-style-type: none"> <li>• <b>retrievability: difficult</b></li> <li>• <b>biased selectivity</b></li> <li>• <b>reporting bias : reflects author bias</b></li> <li>• <b>access : may be blocked</b></li> </ul>
<b>Archival Records</b>	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• precise and quantitative</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Same as above</b></li> <li>• <b>privacy might inhibit access</b></li> </ul>
<b>Interviews</b>	<ul style="list-style-type: none"> <li>• targeted - focuses on case study topic</li> <li>• insightful - provides perceived causal inferences</li> </ul>	<ul style="list-style-type: none"> <li>• <b>bias due to poor questions</b></li> <li>• <b>response bias</b></li> <li>• <b>incomplete recollection</b></li> <li>• <b>reflexivity - interviewee expresses what interviewer wants to hear</b></li> </ul>

<b>Direct Observation</b>	<ul style="list-style-type: none"> <li>• reality - covers events in real time</li> <li>• contextual - covers event context</li> </ul>	<ul style="list-style-type: none"> <li>• <b>time-consuming</b></li> <li>• <b>selectivity - might miss facts</b></li> <li>• <b>reflexivity - observer's presence might cause change</b></li> <li>• <b>cost - observers need time</b></li> </ul>
<b>Participant Observation</b>	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• insightful into interpersonal behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Same as above</b></li> <li>• <b>bias due to investigator's actions</b></li> </ul>
<b>Physical Artifacts</b>	<ul style="list-style-type: none"> <li>• insightful into cultural features</li> <li>• insightful into technical operations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>selectivity</b></li> <li>• <b>availability</b></li> </ul>

**Table 8: Case Study Research 6 sources of evidence: strengths and weaknesses (Source: Yin(2003,p.86)**

In this study four data collection sources were used: documentation, archival records, interviews and direct observation. The documentary information and archival records provided insight into the background of the case, including the meeting agendas and minutes regarding the implementation of social networking tools for knowledge management in the organisation studied. I also explored proposals initially set by the consultants and progress reports regarding the change management and implementation of the project. I examined the assessment figures and reports of each branch of the government organisation, in addition to newspaper clippings from the launch of the project to the events and conferences organised.

In terms of records, I examined organisational records including organisational charts and survey data regarding usability. The strengths of these sources was that I was able to repeatedly go back to the documents and records for clarification and better understanding; they are unobtrusive since they were not created solely for the purpose of the case study. Moreover, the documents and records covered the process in precision and detail and provided broad coverage in terms of the time span, number of events and settings (Yin, 2003). I used the documents and records to reflect on the findings, establish causal relationships and provide explanation. I

overcame the weaknesses mentioned in terms of limited retrievability and access by getting approval to access the documents required to facilitate the research process prior to the start of the research. In terms of bias due to selectively collecting documents and records, I ensured the collection from both the consultants and knowledge management office at the organisation being examined.

The third source of evidence adopted is direct observation. I engaged in field visits to the organisation site. Particularly, I attended a number of conferences, workshops and seminars that the government organisation organised internally and for the public to attend. I took field notes while attending these events and added them to a case study protocol and database. I re-visited these field notes when reflecting on the interviews and data collected to further understand and justify the findings. The advantage of this source of evidence was that it covers events in real-time and provided me with the opportunity of covering the context of the event. I observed the environment, group dynamics and communication between employees themselves and employees and senior management. To increase the reliability of this process, it is recommended to have multiple observers and compare field notes (Yin, 2011), hence, whenever possible I ensured having another person attend and observe too. In this case it was a Knowledge Management instructor and researcher from Zayed University, Abu-Dhabi, United Arab Emirates.

The fourth source of evidence used is interviews; I was particularly interested in three groups: consultants but mainly the knowledge management office and users. These three groups were interviewed in order to gain their insight on the examined phenomenon (application of social networking tools for knowledge management). There are three types of interviews: structured interviews, semi-structured interviews, unstructured or in-depth interviews (Saunders et. al 2009). Naturally, each type of

interview serves different purposes of research; table 9 demonstrates the uses of different types of interview in each of the main research categories.

	Exploratory	Descriptive	Explanatory
<b>Structured</b>		**	*
<b>Semi-Structured</b>	*		**
<b>Unstructured</b>	**		

**Table 9: Use of Different Types of Interviews in Different Researches**

\*\*= more frequent, \*= less frequent

(Saunders et. al 2009, p.323)

The type of interviews used in this study was semi-structured interviews. This type of interview fits in with the exploratory and explanatory purpose of this research as the interviews enabled the development of new insights and furthers the understanding of the relationships between variables. Using this type of interview I attempted to understand how social networking tools can enable the knowledge management process and why do employees decide (or not) to use these tools for knowledge management. A copy of the interview questions asked is in appendix 2.

I used different types of questions to reach to significant and accurate findings. Open questions were used to allow the participants to define and describe the phenomenon. Follow up and probing questions were used to further explore areas that are important to the research topic. Last but not least, closed questions were used to get some specific information or when fact confirmation or opinion was required.

In total 36 interviews were conducted across Alain, Abu-Dhabi and the Western zone, in addition to follow up interviews that were conducted on a re-visit to the case study organisation. The individuals interviewed encompassed the knowledge

management office, what the municipalities call 'knowledge champions' and consultants. There is a knowledge management office in each of the municipalities but the central knowledge management office is at the Department of Municipal Affairs (DMA) and they are in charge of setting standards and ensuring consistency. The DMA also has their own knowledge management office that oversees knowledge management processes and activities at the DMA.

This interview research sample was selected based on the fit between the purpose of the research study and the sample chosen. Given that the exploratory studies are conducted when there is little or no evidence in the literature and the objective of exploratory studies is to clarify the understanding of a problem, there are three main ways of implementing exploratory research, including: literature search, interview expertise and applying focus group interviews (Saunders et al., 2009). In addition, semi-structured interviews are often used in explanatory studies to understand the relationships between variables.

I have commuted across all the three different regions in the United Arab Emirates to meet with the knowledge management office members. I have interviewed all nine members of the knowledge management office team for they can provide deep insights from their in-depth experience of applying social networking tools for knowledge management at the municipalities. They are the central point of reference for all knowledge management related issues and as a result have expertise and rich experience in the Musharaka framework design and implementation through their interaction with management, employees and the consultants from the start of the project.

Another group of employees that were interviewed are the knowledge champions. Each division has at least one knowledge champion. I have interviewed 25 knowledge champions in total from across all municipalities and departments with the exception of Abu-Dhabi Municipality as it still has not adopted the Musharaka Framework. I have chosen to interview the knowledge champions for they are the first wave users of the social networking platform of Musharaka and have been present before the social networking community existed, hence they were able to shed light on the difference they observe after the implementation of these tools and their experience of whether these tools enhanced the knowledge process or not. Also, they were able to provide a hands-on input on the opportunities and challenges of using these tools, what factors determined their usage of these tools or not. In return, all that is vital to answer the research questions and objectives. Table 9 highlights the participants' demographic location and numbers of participants. I have also met two of Mouchel's consultants who have overseen the implementation of the project, one which was responsible for the business side of the implementation and the other was responsible for the technical side of the implementation. I have decided to interview them to learn more about the framework and to get their insight on the implementation aspects of the project.

**Table 9: Participant Demographics**

<b>Municipality</b>		<b>Number of Knowledge Management Office Employees</b>	<b>Number of Knowledge Management Office Employees Interviewed</b>	<b>Total Number of Knowledge Champions</b>	<b>Number of Knowledge Champions Interviewed</b>
<b>Department of Municipal Affairs</b>	2	2	21	9	
<b>Abu-Dhabi Municipality</b>	2	2	-	0	

<b>Al-Ain Municipality</b>	3	3	26	8
<b>Western Region Municipality</b>	2	2	29	8
<b>Total</b>	9	9	76	25

All the research participants were given an information sheet that provided them with the background of the study and a consent form that they signed. The language of the interviews was English mostly but four of the participants preferred to be interviewed in Arabic, hence, for their comfort and to get reliable results, I conducted them in Arabic. The researcher then translated the interviews to English to use them for the research. The translated English transcript was given to each participant to approve or modify prior to data analysis.

All of the interviews with the exception of one were audio-recorded as the interview was with a top manager who walked through the process of conceptualising 'Musharaka' but preferred if he was not recorded. I chose to record the interviews to concentrate on listening to the participants and to accurately capture the conversation and get back to it at a later time when required. The interviews were then transcribed to allow direct quotes to be used and to aid the analysis of the data process. Nonetheless, to protect the identity of research participants, I assigned each participant an anonymous label that can be used when quoting them. The label consists of three parts an abbreviation of: the municipality the research participant works for, the function they occupy (whether they are knowledge manager officers or knowledge champions) and an ID number I assigned for them. In terms of the Mouchel consultants, their labels consist of an abbreviation of the place they work



for, the function they occupy and an ID number I assigned for them. See table 10 for each abbreviation and its description.

**Table 10: Abbreviations and Description**

	Abbreviation	Description
<b>Municipality</b>	DMA	Department of Municipal Affairs
	ADM	Abu-Dhabi Municipality
	AAM	Alain Municipality
	WRM	Western Region Municipality
<b>Function</b>	KM	Knowledge Management Officer
	KC	Knowledge Champion
<b>Consultant</b>		
	MC	Mouchel Consultant

Table 11 highlights the anonymous label I created for each knowledge management office participant, which included the municipality they work for, the function they provide and an ID number.

**Table 11: Knowledge Management Office Research Participants Labels**

Participant Label	Description
<b>DMAKMO1</b>	Department of Municipal Affairs Knowledge Management Officer One
<b>DMAKMO2</b>	Department of Municipal Affairs Knowledge Management Officer Two
<b>ADMKMO1</b>	Abu Dhabi Knowledge Management Officer One
<b>ADMKMO2</b>	Abu Dhabi Knowledge Management Officer Two
<b>AAMKMO1</b>	AlAin Knowledge Management Officer One
<b>AAMKMO2</b>	AlAin Knowledge Management Officer Two
<b>AAMKMO3</b>	AlAin Knowledge Management Officer Two
<b>WRMKMO1</b>	Western Region Knowledge Management Officer 1
<b>WRMKMO2</b>	Western Region Knowledge Management Officer 2

Table 12 highlights the anonymous label I created for each knowledge champion, which includes the municipality they work for, the function they provide and an ID number.

**Table 12: Knowledge Champion Research Participants Labels**

<b>Participant Label</b>	<b>Description</b>
<b>DMAKC1</b>	Department of Municipal Affairs Knowledge Champion 1
<b>DMAKC2</b>	Department of Municipal Affairs Knowledge Champion 2
<b>DMAKC3</b>	Department of Municipal Affairs Knowledge Champion 3
<b>DMAKC4</b>	Department of Municipal Affairs Knowledge Champion 4
<b>DMAKC5</b>	Department of Municipal Affairs Knowledge Champion 5
<b>DMAKC6</b>	Department of Municipal Affairs Knowledge Champion 6
<b>DMAKC7</b>	Department of Municipal Affairs Knowledge Champion 7
<b>DMAKC8</b>	Department of Municipal Affairs Knowledge Champion 8
<b>DMAKC9</b>	Department of Municipal Affairs Knowledge Champion 9
<b>AAMKC1</b>	AlAin Municipality Knowledge Champion 1
<b>AAMKC2</b>	AlAin Municipality Knowledge Champion 2
<b>AAMKC3</b>	AlAin Municipality Knowledge Champion 3
<b>AAMKC4</b>	AlAin Municipality Knowledge Champion 4
<b>AAMKC5</b>	AlAin Municipality Knowledge Champion 5
<b>AAMKC6</b>	AlAin Municipality Knowledge Champion 6
<b>AAMKC7</b>	AlAin Municipality Knowledge Champion 7
<b>AAMKC8</b>	AlAin Municipality Knowledge Champion 8
<b>WRMKC1</b>	Western Region Knowledge Champion 1
<b>WRMKC2</b>	Western Region Knowledge Champion 2
<b>WRMKC3</b>	Western Region Knowledge Champion 3
<b>WRMKC4</b>	Western Region Knowledge Champion 4
<b>WRMKC5</b>	Western Region Knowledge Champion 5
<b>WRMKC6</b>	Western Region Knowledge Champion 6
<b>WRMKC7</b>	Western Region Knowledge Champion 7
<b>WRMKC8</b>	Western Region Knowledge Champion 8

Table 13 highlights the anonymous label given to each of the consultants of the Musharaka project, which includes the abbreviation of the consultancy firm they work for, the function they provide and an ID number.

Table 13: Mouchel Consultants Research Participants Labels

Participant Label	Description
MC1	Mouchel Consultant 1
MC2	Mouchel Consultant 2

It is important to create labels to identify the research participants with, while keeping their identity anonymous (Saunders et al., 2009). These set of labels wered used when quoting the research participants. They will be referred to further in the 'Results and Findings' chapter.

Once the sources of evidence are identified, some key principles need to be followed to gain maximum benefit from them (Yin, 2011). The first is to triangulate and use multiple source of evidence as it provides rigor to the research and not handle each source of evidence individually, rather converge the findings from multiple resources to understand the whole phenomenon. The second principle corresponds to creating a database with the raw data that the researcher can go back to for independent inspection. This increases the reliability of the case study for it allows the researcher to retrieve and organisation data sources including notes, key documents, audio files and etc. (Yin, 2003; Stake, 1995). Finally, maintaining a chain of evidence to trace the steps of the research in either direction. This also increases the reliability of the case study as it ensures that the case study report contains the same evidence as was collected and demonstrated that no evidence have been lost by carelessness or bias (Yin, 2003).

Case study report should correspond to the case study database and the database should demonstrate how and when evidence was collected and describe the surrounding circumstances. The circumstances should be in line with specific

procedures and questions in case study protocol whilst the case study protocol should be associated to the initial case study questions. See Figure 14.

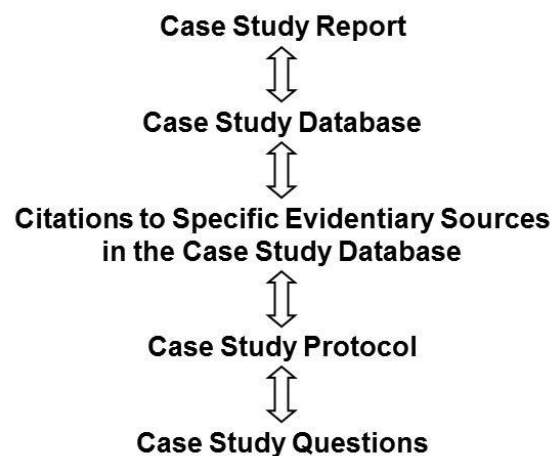


Figure 14: Maintaining a Chain of Evidence – Source Yin(2003, p.106)

Therefore, I ensured that each data source was not treated individually, I converged the data from the different sources so that the findings were not reported separately, in return, understanding the overall case, not the various parts of the case. In addition, a database was used to collect all evidence which eased the process of data retrieval and usage. Furthermore, I maintained a chain of evidence in, which the questions led to the case study protocol, and the sources of evidence fed into the database which led to the report. The process was transparent and the steps are all there, contributing to the study being repeatable. This is discussed in further detail in the ‘Ensuring Credibility and Quality in Case Study Research’ section.

### **Analysing Qualitative Studies and Case Study Data**

Authors have always distinguished between the analysis of qualitative data and the analysis of quantitative data (Easterby-Smith et al., 2008). Whilst quantitative data analysis is based on meanings derived from numbers, qualitative data analysis is

based on meanings expressed through words and while collection results are numerical and standardized in quantitative, the collection results are non-standardised and require classification into categories in qualitative analysis (Dey, 1993). Moreover, in quantitative studies analysis is conducted by the use of statistics whilst conceptualisation is used in the analysis of qualitative data (Dey 1993).

This indicates the diverse nature of qualitative data and to add to this or due to this, there is no standardized procedure for analysing such data (Saunders et al., 2009). As part of my data analysis, I engaged in the categorisation of data to group the data in which initial categories were derived from existing theory in the academic literature. Prior to the start of data collection, using existing academic literature, the interview guide and questions, I derived categories, higher order codes, whilst I used subsidiary questions and probes to produce lower-order codes. These categories were initially set and I continued to develop them during data collection and prior data analysis. I ensured that the categories were well structured to enable a coherent analysis of the data. This process will be elaborated on in the data analysis section.

Similar to any qualitative study, the data collection and analysis of a case study happen concurrently (Baxter et al., 2008). Once the analytic strategy is decided upon and the data grouping process is chosen, an analysis technique should be identified. A review of other case study data analysis techniques from prominent and recent authors on case study research has been conducted and the findings are revealed in table 14.

Author (s)	Case Study Data Analysis Method
Yin(2003,2011)	<ul style="list-style-type: none"> <li>• Pattern Matching</li> <li>• Explanation Building</li> <li>• Time series analysis</li> <li>• Logic Models</li> <li>• Cross-Case Synthesis</li> </ul>
Creswell(2007), Stake (1995)	<ul style="list-style-type: none"> <li>• Categorical Aggregation</li> <li>• Direct Interpretation</li> <li>• Patterns</li> <li>• Naturalistic Generalizations</li> </ul>
Thomas(2011)	<ul style="list-style-type: none"> <li>• Constant Comparative method: Eliciting themes</li> <li>• Systems thinking</li> <li>• Drawing story boards</li> <li>• Developing theory</li> <li>• Using narrative</li> <li>• Think drama</li> </ul>
Glaser and Strauss (1976, 2008)	<ul style="list-style-type: none"> <li>• Grounded theory</li> </ul>
King (2004,2011)	<ul style="list-style-type: none"> <li>• Template Analysis</li> </ul>
Miles and Huberman(1994)	<ul style="list-style-type: none"> <li>• Data Display and Analysis</li> </ul>
Hanckock and Algozzine (2011), Berg (2004)	<ul style="list-style-type: none"> <li>• Content Analysis</li> </ul>

**Table 14: Review of Case Study Data Analysis Methods**

The analytical techniques that were considered for this study were: grounded theory, pattern matching and template analysis. Grounded theory has become the most widely used framework for analysing qualitative data (Bryman and Bell, 2007) and is defined as an analytical technique ‘in which theory is developed from data generated by a series of observation or interviews principally involving an inductive approach’ (Saunders et al., 2009, p.592). Within the grounded theory, specific analysis procedures are followed to build an explanation or to generate a theory. Some prominent advocates of grounded theory mention fairly specific procedures to be taken with regards to each of the stages of the categorising data process (Saunders et al., 2009). As a result, the grounded theory of Strauss and Corbin (2008) is systematic and structured, with predefined procedures to abide by at each stage of analysis. There is a general consensus that the rigour of the explanation or theory

sought to advance is dependent on paying particular attention to the nature of procedures set for grounded theory (Strauss and Corbin, 2008).

The second data analysis technique considered was the pattern matching technique. This is one of the most preferred analytical techniques when conducting case study research (Yin, 2011). The logic behind this technique is to compare an empirical based pattern (from the literature review) with a predicted one (Saunders et al., 2009). It involves developing theoretical propositions to explain what is expected to be found. If the pattern of the data that have emerged from the data collection matches the theoretical proposition predicted then an explanation is found and the internal validity of the study is strengthened as a result (Yin, 2011).

The third data analysis technique considered was the template analysis technique which is based on the work of King (2004) and is also used to analyse qualitative data. Since the analysis technique has been published in 2004, the numbers of studies that have used the template analysis technique have grown considerably (Saunders et al., 2009). King (2012, p.426 ) defines a template analysis as a 'style of thematic analysis that balances a relatively high degree of structure in the process of analysing textual data with the flexibility to adapt it to the needs of a particular study.' A template is basically the collection of codes and categories that signify the themes unravelled from the data that have been collected. It involves 'creating and developing hierarchal template of data codes or categories representing themes revealed in the data collected and the relations between these' (Saunders et al., 2009, p.602). The template analysis combines both an inductive and deductive approach to qualitative analysis for the codes can be predetermined and then modified or added to as the data is being collected and analysed (King, 2012; Saunders et al., 2009).

Upon considering these three relevant analysis techniques, the template analysis technique was chosen as it deemed to be the most significant for this research, in the following ways: firstly, since the template analysis technique lends itself to the philosophical position identified in earlier sections. For instance compared to the Glaser, Strauss and Corbin grounded theory approach and Yin's pattern matching technique, that usually retain a realist orientation trying to discover the 'real' beliefs and attitudes of the participants (Saunders et. al, 2009), the template analysis takes a contextual constructivist position (King, 2012).

Secondly, the template analysis technique deemed more suitable for this research given its flexible, less rigid procedures, which allowed the customisation of the technique to the requirement of the research. The analysis technique allows the prior identification of codes and themes and the continuous revision of the template. For instance, as opposed to the grounded theory the template analysis provides more flexibility of the coding structure and allows prior identification of codes to analyse the data, whilst grounded theory does not allow this and is purely inductive. In addition, the pattern matching technique limits the researcher to a predefined set of propositions and a deductive based analysis as opposed to the template analysis technique that allowed me to combine both an inductive and deductive approach. The identification of codes for the initial template from the literature review, pilot study and interview questions called for a deductive approach, whilst I also considered other emerging themes and patterns from the interviews that are relevant to the research and they were fed as codes to the template and as a results in the findings and analysis section, hence deploying an inductive approach. This flexibility was important for this research exploratory and explanatory purpose.



Finally, the template analysis technique balances the need for flexibility with the need for structured analysis. For instance, as opposed to the grounded theory that tends to be more structured, outlining a list of procedures that must be used, and the pattern matching technique that imposes the clear identification of propositions prior data collection, the discipline of producing the template enables a well-structured, systematic approach to handling data (King, 2012) without compromising on the flexibility of the research. This will be expanded on in the below section.

Similar to the general approach to categorizing data outlined above, template analysis includes the development of themes, codes and categories and attaching units of data to them. King (2012, p.430) defines themes in qualitative analysis as 'the recurrent and distinctive features of participants' accounts (in interviews, diaries, blogs and so on) that characterise perceptions and/or experiences, seen by the researcher as relevant to the research question of a particular study'. King (2004) identifies that for the data collected to qualify as a theme, it must be repeatable, independent of the researcher who defines them and to add value themes but be different from each other.

One of the key features of template analysis is the hierarchical organisation of the codes, with group of similar codes assembled together to generate higher order codes. The hierarchy of codes enables the researcher to analyse texts at different levels of detail and the researcher can enlist as many levels of themes as deemed useful. As data collection proceeds, the initial template must be revised as part of the process of qualitative analysis, this may be in the form of:

- Inserting a new code into the hierarchy due to the emergence of a relevant issue during data collection

- Deleting a code from the hierarchy if it did not deem significant
- Changing the scope of a code, i.e. changing its level within the hierarchy
- Reclassifying a code to a different category

(King, 2012; Saunders et al., 2009).

The template may be displayed in two styles; the themes may be presented as list or as a mind map. Most of the publications using template analysis incorporate a list, nonetheless, when the lateral links between thematic clusters are important it is useful to consider the mind map style of presentation.

The initial template developed based on the literature review and interview questions is presented in the data analysis section. The template was modified as I conducted the interviews. In return, in this research I deployed both a deductive and inductive approach to analysing data. The identification of codes for the initial template from the literature review and interview questions called for a deductive approach, whilst I also considered other emerging themes and patterns from the interviews that are relevant to the research and they were fed as codes to the template and as a results in the findings and analysis section, hence deploying an inductive approach.

Once this is established it is important to consider mechanisms to ensure the quality of the case study. Some mechanisms need to be considered prior or during data collection, others during analysis and composition. The next section elaborates more in this area.

### **Ensuring Credibility and Quality in Case Study Research**

Many frameworks have been established to assess the rigor or evaluate the quality of qualitative data and strategies for ensuring validity, reliability, credibility and replication (Krefting, 1991; Sandelowski, 1993). A general outline for critically

evaluating qualitative research has also been discussed (Forchuk and Roberts, 1993; Mays and Pope, 2000). When designing and implementing a case study research project a number of main elements needs to be considered at the design of the study to facilitate quality and trustworthiness (Russel et. al, 2005): (a) a clear written research question and that propositions are listed (if appropriate to the type of the case study) and the question is demonstrated; (b) The case study design is suitable for the research question; (c) The sample is appropriate to answer the research question and is aligned with the design; (d) The process of data collection and management s is systematic; (e) The process of data analysis is accurate.

To ensure construct validity, I adopted four sources of evidence during data collection; each of them was converged when presenting the key findings of the case study. In addition, a chain of evidence was developed so that it was easy to trace down the process of reaching to the evidence and finally, once the case study was written and before finalising it, I got key informants to provide their input on if the reality was captured accurately or not.

Internal validity test was relevant to this study since it is has an explanatory component, focussing on causal inferences. In order to achieve internal validity, I conducted a pattern matching technique to compare the findings from this research to previous research to ensure internal validity. By adopting this technique I identified causal relationships and explored rival explanations.

External validity or sometimes referred to as generalisability, is different in terms of survey research and case study research. In survey research, the aim is to produce statistical generalisations about a large sample but in this study, I aimed to produce an analytical generalisation i.e. 'generalise a particular set of results to some broader

theory' (Yin, 2003, p.37). The result will be of value to future research and investigation as it sheds light to a unique area/phenomenon.

In terms of reliability, I used a case study protocol and utilised a case study data base during data collection to ensure that all the evidence is captured and if the study is done again, the same results will be achieved. The advantage of using case study protocol and developing a case study data base is that they allow the study of the case study process to be transparent and repeatable.

### **Data Analysis Process**

Having described the general template analysis approach taken in the data sources and collection section, I will present here the steps involved in using it for the analysis of the data collected for my study.

As it has been identified in the 'Data Sources and Collection' section, 36 interviews were conducted in total. The transcribed interviews were analysed using the template analysis technique. The stages of this analytical process are described below. To facilitate the analysis the transcripts were formatted in double space with wide margins, and line numbered. The overall aim was to examine the experience of municipalities' employees when using social networking tools for knowledge management. The process of producing the final template for analysis is described below.

#### **A priori themes and preliminary coding**

I read through the transcripts to familiarize myself and to check for any possible errors in transcription prior beginning the preliminary coding. It is not obligatory to identify priori themes but if used it is useful to have a sheet beside the transcripts listing and defining these (King, 2012). Before I started preliminary coding I identified

priori themes, based on the initial reading of the literature (Van Zyl, 2009; Alavi and Leidner, 2001; Jashapara, 2011). These are described in table 15.

Table 15: Priori themes and Descriptions

A priori theme	Descriptions
<b>Contextual factor</b>	Includes: background information on the case for instance, purpose of the Musharakah framework, roles and municipalities involved
<b>Nature of Musharaka Framework</b>	Includes: the tools implementation, features and functions
<b>Experience and application</b>	Includes: employees experience from using the Musharaka framework and how it enhances the knowledge management process
<b>Decision Factors</b>	Includes: the factors that influence the decision of employees of whether to use the social networking tools or not
<b>Awareness</b>	Includes: the groups that were targeted in the awareness programs and the type of workshops offered
<b>Key Success Factors</b>	Includes: employees beliefs on what could be done better or improved to ensure success

I then read through the transcripts and added preliminary codes in the margins of the text that appeared to relate to matters relevant to the study objectives. Whenever a section appeared that can be covered by one of the priori themes, I placed a note in the transcript. The next step taken is the creation of the initial template.

### Initial template

There is no fixed rule as to when the initial template should be developed, the more diverse the stories from the group of people interviewed, the more transcripts need to be analysed to produce a workable initial template (King, 2012). In my study, I produced the first version of template on the basis of the preliminary coding of the first group of interviews I conducted at the Department of Municipal Affairs. To develop the initial template I started by clustering the preliminary codes in an attempt to group them into meaningful groups within which hierarchal and lateral relations

between themes can be defined. I followed Kings' tip of writing each potential theme on a post-it note and placing the notes on large sheets of paper to represent meaningful clusters. Since the post-it notes can be easily moved around, I was able to explore alternative ways of organizing the template. Figure 15 displays the initial template that is a result of a lengthy process of trying out different versions of the structure.

#### **Initial Template**

#### **1. CONTEXTUAL FACTORS**

- 1.1. Reasons for 'Musharaka' Framework
- 1.2. Employee prior background on Knowledge Management
  - 1.2.1. Existing
  - 1.2.2. None-existing
  - 1.2.3. Somehow existing
- 1.3. Role within the 'Musharaka' framework
  - 1.3.1. Knowledge Management Office
  - 1.3.2. Employee/User
  - 1.3.3. Consultant
- 1.4. Municipality
  - 1.4.1. Department of Municipal Affairs
  - 1.4.2. Abu-Dhabi Municipality
  - 1.4.3. Al-Ain Municipality
  - 1.4.4. Western Zone
- 1.5. Experience with 'Musharaka'
- 1.6. Awareness
  - 1.6.1. Types of awareness
  - 1.6.2. Target groups
  - 1.6.3. Others

#### **2. Nature of 'Musharaka' Framework**

- 2.1. Tools
- 2.2. Features
- 2.3. Functions

#### **3. Experience and Application**

- 3.1. Value of 'Musharaka'
- 3.2. Improve job effectiveness
  - 3.2.1. Platform for problem solving
  - 3.2.2. Eliminating Organisational Wastage by avoiding reinventing the wheel
  - 3.2.3. Aggregating of Information in an efficient manner
- 3.3. Locating expertise
- 3.4. Increase job morale and motivation

#### **4. Decision Factors**

- 4.1. Encourages
  - 4.1.1. Ease of use
  - 4.1.2. Popularity
- 4.2. Prohibits
  - 4.2.1. Busy Schedules
  - 4.2.2. Validity of the content
  - 4.2.3. Security and Privacy

#### **5. Feedback**

- 5.1. Challenges
- 5.2. Overall rating
  - 5.2.1. Positive
  - 5.2.2. Negative

- 5.3. Functionality
    - 5.3.1. Technical
    - 5.3.2. Non-Technical
  - 6. **Success Ingredient**
    - 6.1. Success ingredient
- [Uncategorised] : Early adoption, managerial support, incentives, policies and procedures, accessibility
- Figure 15: Initial template**

Although 'Awareness' was identified as a priori theme, it was not enlisted in the initial template for it was found that little that would fit under the priori theme title (Awareness) that did not also fit elsewhere on the template (under contextual factors). In addition, there were a number of preliminary themes that could not comfortably be included on the template and therefore, for now, were left as uncategorised such as: early adoption, managerial support and etc. See figure 15. The next step is modifying the template.

### **Modifying the template**

When the initial template is set, the researcher needs to work systematically through the complete set of transcripts, in an attempt to identify the section of the text that correspond to the project's objectives and attaching to them the appropriate code (King, 2012). Through this process, inadequacies on the initial template will surface and change of different kinds will be required (King, 2012).

Therefore, I had to make several modifications to the initial template. Modifications to a template usually take one or more of the following forms: inserting a theme, deleting a theme, changing the scope of a theme and changing the higher-order classification of a theme (King, 2012). Examples of the various ways in which I had to reorganise the template are given below.

### **Inserting a new theme**

After developing the initial template, I added the theme 'Stage of Implementation'. Whilst some issues relating to the implementation stage did appear on the first

version of the initial template, and more were added subsequently, it was only at this point that the importance of the area that it was recognised that the importance of the area in general was best reflected by creating such a theme. In addition four third level themes were added, under the top level theme decision factors, which are: Managerial Support, Organisation Environment and Culture, Rewards and Incentives and Accessibility. This is due to the fact that new recurrent themes emerged from the interviews that influence the decision factors of the employees to use social networking tools for knowledge management.

#### **Deleting a theme**

The top-level theme success factors was deleted at version three of the template for during the process it was felt that it could be enlisted under a different theme (feedback) at a lower rank code. This was because, as the analysis progressed, it was increasingly observed that in terms of the research aims decision factors and feedback were more significant.

#### **Changing the scope of a theme**

Having deleted the top-level theme 'Success Factors', I made changes in scope to the subsidiary theme 'key success factor' and its sub-themes. I concluded that the notions mentioned, were better fit under the 'feedback' top-level theme as the issues were interrelated.

#### **Changing the higher order classification**

In the second version of the template, the factors that have been uncategorised in the initial template were added under a third level theme 'other' under the top level theme decision factors. After realising their importance as I continued to code the transcripts they were changed into a higher order classification, transforming them from a level four to a level three in the next version of the template. This is an example of how. After the modifications are made the final template is developed.



This example demonstrates a change in scope in addition to the changing the higher order classification.

### **The ‘final’ template**

It is often hard to decide when is the time to stop constructing an analytical template, the process of modifying the template can go on infinitely (King, 2012). Nonetheless, the decision on when a template is ‘good enough’ is always unique to each project (King, 2012). In this study, once all sections of the text that correspond to the research questions have been coded and all relevant issues identified, the final template was developed (Figure 16).

#### **1. CONTEXTUAL FACTORS**

- 1.1. Reasons for ‘Musharaka’ Framework
- 1.2. Employee prior background on Knowledge Management
  - 1.2.1. Existing
  - 1.2.2. None-existing
  - 1.2.3. Somehow existing
- 1.3. Role within the ‘Musharaka’ framework
  - 1.3.1. Knowledge Management Office
  - 1.3.2. Knowledge Champion
  - 1.3.3. Consultant
- 1.4. Municipality
  - 1.4.1. Department of Municipal Affairs
  - 1.4.2. Abu-Dhabi Municipality
  - 1.4.3. Al-Ain Municipality
  - 1.4.4. Western Zone
- 1.5. Experience with ‘Musharaka’
- 1.6. Awareness
  - 1.6.1. Target groups
  - 1.6.2. Type of workshops
  - 1.6.3. Others

#### **2. Nature of ‘Musharaka’ Framework**

- 2.1. Tools
- 2.2. Features
- 2.3. Functions

#### **3. Stage of Implementation**

- 3.1. Early adopters

#### **4. Experience and Application**

- 4.1. Value of ‘Musharaka’
  - 4.1.1. Core of Musharaka
- 4.2. Improve job effectiveness
  - 4.2.1. Platform for problem solving
  - 4.2.2. Eliminating Organisational Wastage by avoiding reinventing the wheel
  - 4.2.3. Aggregating of Information in an efficient manner
  - 4.2.4. Locating expertise
  - 4.2.5. Increase job morale and motivation

#### **5. Decision Factors**

- 5.1. Encourages
  - 5.1.1. Ease of use

- 5.1.2. Popularity
  - 5.1.3. Younger, IT generation
- 5.2. Prohibits
  - 5.2.1. Managerial Support
  - 5.2.2. Organisation Environment and Culture
  - 5.2.3. Rewards and Incentives
  - 5.2.4. Accessibility
  - 5.2.5. Busy Schedules
    - 5.2.5.1. Lack of understanding
  - 5.2.6. Validity of the content
    - 5.2.6.1. Process
    - 5.2.6.2. Statement of agreement
  - 5.2.7. Security and Privacy
    - 5.2.7.1. Policies and Procedures
- 6. Feedback**
  - 6.1. Challenges
  - 6.2. Overall rating
    - 6.2.1. Positive
    - 6.2.2. Negative
  - 6.3. Functionality
    - 6.3.1. Technical
    - 6.3.2. Non-Technical
  - 6.4. Success ingredient
    - 6.4.1. Building buy-in
    - 6.4.2. Language of workshops
    - 6.4.3. Alignment to day-to-day work
    - 6.4.4. Top management
    - 6.4.5. Rules and regulations

**Figure 16: Final Template**

Once the final template is produced, the interpretation and presentation of the results commences. Nonetheless, interpreting the findings is not simply summarising the findings of each theme as this will result in a flat description instead it involves being selective about the aspects that correspond to the study aims (King, 2012). Hence, I followed a set of guidelines developed by King, in order to ensure the interpretation and presentation sections are well presented. This approach is covered in the next section.

### **The interpretation and Presentation of the Template Analysis**

There are four suggestions that King (2012) provided to ensure that the interpretation and presentation of the template analysis is effective. Each of these suggestions is highlighted below and the approach I took in correspondence with each is outlined.

### ***Interpretation***

I presented the findings that are the most significant to the study's objectives and aims. I drew together the interpretation of the coded data in a manner that answers the most significant research questions.

### ***Listing Codes and Themes***

King (2012) encourages the habit of listing all the codes and themes occurring in each transcript in each stage. This practice draws attention to the aspects of data that require further examination and introduces the patterns revealed. I have enlisted the codes and themes in relation to the transcripts produced and this guided me towards factors that I have not originally included in my priori themes or initial template (for instance: the three new codes I added to my decisions factors top level theme: managerial support, organisational environment and culture and rewards and incentives).

### ***Selectivity***

King (2012) warned from rushing into the themes that you wish to examine in-depth and at the same time against prioritising the themes based on mere frequency. It should not be automatically assumed that any one of the priori themes must go into the final template or the themes that are repeatedly mentioned are the most important. A balance should be established and carefully considering each them and individual stories and how they shed light on the topic of interest is encouraged. In the case of this study, priori set themes were not all included in the final template analysis and special attention was taken to the stories individuals provide to assess their relevance to the objectives of the study.

### ***Openness***

A balance should also be established between being selective and open towards analysing and interpreting data (King, 2012). It is important not to dismiss an issue

that clearly was highlighted consistently by the research participants just because it is not of direct relevance to the research questions. The researcher may need to look closely and revise the research questions at times. In this case once the initial interviews took place and the participants mentioned points constantly and they were important, I revisited the literature, the research questions and made some modifications to ensure that I am not missing on valuable, significant information.

Once the template has been developed and the data was analysed using the template analysis technique and the guidelines mentioned above, the results of this analysis will be presented in the findings chapter next.

## Chapter 6 - Results and Findings

This research investigated the application of social networking tools for knowledge management across the municipalities' sites. The findings identified the experience of municipality employees in using social networking tools for knowledge sharing and management and examined the factors that contributed to or prohibited the usage of these tools for knowledge management.

In this chapter, the results of the data collection are set out, analysed and compared to the existing literature. The findings developed from all data collection and analysis are divided and presented in in four sections:

Section 1 -Musharaka Framework Stage of Implementation: this section describes the current status of Musharaka and puts the study into context and within scope.

Section 2- Social Networking Tools at the Core of the Musharaka Framework: this section outlines how significant and valuable employees view social networking tools for knowledge management.

Section 3- Social Networking tools for Knowledge Management and Employee Job Effectiveness: this section identifies why employees view social networking tools as valuable to knowledge management and in what way and context.

Section 4- Factors Influencing Employees Decision on whether to use Social Networking Tools for Knowledge Management (or not): this section describes the factors that encourages the decision or prohibits users from using social networking tools for knowledge management

In the end a summary table is presented to compare the findings to the existing literature which acts as bridge to the next chapter, the discussions chapter, in which the findings will be further discussed.

### **1. Musharaka Framework Stage of Implementation**

This theme was not one of the priori themes and was not included in the initial template developed. However, as the interviews were conducted, it became a recurrent theme and its importance surfaced which resulted in the modification of the template during the analysis stage.

The interviews at the municipalities revealed that the implementation of social networking tools for knowledge management is a gradual process and that there are necessary steps that need to be taken for these tools to reach maturity (Paroutis and Saleh, 2009). The quotes from participants that justify the aforementioned will be presented later on in this section.

Therefore, it became apparent that prior to understanding how social networking tools were able to facilitate the knowledge management process, it was important to identify the stage at which they were at in the adoption or implementation of these tools. For each adoption stage presents its own unique set of attitudes, behaviours and challenges. Nonetheless, due to the novelty of these tools and field of research a maturity model related to social networking tools for knowledge management is non-existent thus far. Therefore, to comprehend and describe the maturity stage Abu-Dhabi Municipality was operating at in that moment, the Capability Maturity Model was used.

The maturity model that will be used to identify the stage of implementations is the capability maturing model (see chapter 3). This model was selected due to its rigour

and relevance (Khatiban et al., 2010; Ehms and Langen, 2002; Kochikar, 2000; Paulzen and Perc, 2002). The majority of the existing knowledge management frameworks adopted their initial structure from the capability maturity model (Khatiban et al., 2010; Ehms and Langen, 2002; Kochikar, 2000; Paulzen and Perc, 2002).

The interviews revealed that the Department of Municipal Affairs 'Musharaka' framework was at the early implementation period, i.e. the initial stage, which is the first stage of the Capability Maturity Model. All the managers and employees expressed this for instance research participant AAMKC4, a knowledge champion in Alain municipalities mentioned: *'we are still in the beginning of the implementation'* and a member of the knowledge management office in DMA, DMAKMO2 stated: *'we are still in stage one of introducing the communities of practice'*. While the system and framework were established, and a number of awareness programs and workshops were provided, there was still confusion from the employee's perspective surrounding the framework, its purpose and how to use it. A knowledge manager commented on the awareness level of employees, participant WRMKMO1:

*'I honestly think it is not enough. I think there was a phase.. you know like any project .. during initiation you spend a lot of time training and they did invest a lot of effort in communicating. I don't think it is enough because communication and awareness should be on-going.'*

Moreover, it is chaotic, policies and procedures are still non-existent and when they are, the employees were not all aware of them. Employees expressed the need for a policy and for different departments to work together towards the optimization of these tools, for instance research participant DMAKC9 from the strategic planning department identified:

*‘You know from different angles you can make it a policy, from an IT perspective you can make it integrated, from a HR perspective you make sure that there’s a monitoring from HR to track that these are active users. From a Strategic Planning point of view we make sure that discussions are there about projects and project updates. So if everyone is contributing and feeding in to that system then you end up using it daily. ‘*

To sum up, from the interviews conducted, there was a general sense that knowledge management processes are not well-defined, they were still ad-hoc and there was an element of chaos and confusion which demonstrated that the Musharaka framework was still at early stages of implementation. It was important to identify the stage of implementation for the experiences that are presented in the following sections reflect the employees’ view of social networking tools for knowledge management at the initial stage. Hence, the set of opportunities and challenges are unique to this stage.

## **2. Social Networking Tools at the Core of the Musharaka Framework**

Despite ‘Musharaka’ being at the initial stages of implementation, there is a general consensus and belief amongst all participants interviewed that social networking tools are the heart of Musharaka framework and that they add a significant value, some participants go as far as saying that social networking tools are Musharaka, participant AAMKC6 mentions: *‘In my opinion they are Musharakah. They are the main components of Musharakah’*. Knowledge Champion AAMKC6 from Alain Municipality adds:

*‘Yes of course (they add value) because Musharakah means everybody puts his idea, his knowledge, to share it with the others that is why they (social networking tools) are very important.’*



A knowledge champion from the Western Region Municipality, WRMKC2 elaborates: *'They are a key knowledge management tool and a key part of the Musharakah portal. And they are very high in importance. They organise groups around their knowledge and field of practice rather than traditional organisation silos.'*

Other participants believe that the social networking tools that are implemented as part of Musharaka add significant value for they particularly address the way the Municipality work and they bring people from different locations together and enable them to communicate even from remote areas. Research participant DMAKC9 discussed:

*'I feel they are one of the most important parts of the framework ..they are especially important if you have virtual organisations in the sense that you have several physical locations but the people don't see each other every day. So this is where these tools come in and really strengthen the Municipalities.'*

Various social networking tools were implemented as part of the Musharaka framework, including: collaborative workspace, blogs, wikis, newsletters, discussion forums, members list. Each of these tools was used for a different purpose at the municipalities and the frequency of their use varied. Amongst the most widely used social networking tool at the municipalities is the collaborative workspace, 'one of the social networking tools that I use the most is the collaborative workspace tools' knowledge champion AAKMC02 mentioned. Using the collaborative workspace platform, employees at the municipalities were able to access the same document and collaborate dynamically in producing the final version of the document. Employees at the municipalities used the collaborative workspace to connect with

their counterparts across different municipalities and work together in producing a common document that is accessible to all.

The second social networking tool that was frequently used at the municipalities was blogs. They were mainly used due to their low maintenance costs, the ease of use and to encourage team communications. Blogs were used to fulfil different tasks at the municipalities, for instance the HR department used it to advertise job openings or staffing needs. In addition, the project management team used it for collaborative brainstorming. In the future the municipalities are planning to use blogs to develop new services or to improve the existing ones.

Wikis are the third form of social networking tools that were often used at the municipalities. Research participants from the municipalities attributed their usage of the tool to it enabling an advanced content management and development platform, whilst providing open and simple editing access that encourages participation. Wikis have been used in different ways at the municipalities, for example the HR department uses it as a mean to introduce the new hires to the key policies and procedures at the municipalities. Furthermore, wikis were used at the municipalities to create a 'who's who' guide at the municipalities, in essence introducing employees to the expertise of various employees. Wikis were also used by the employees at the municipality to document, access and share lessons learnt from various projects.

The fourth form of social networking tools that were implemented as part of the Musharaka framework and used by employees at the municipalities are the newsletters. They were used to share light-hearted material that the community wishes to circulate. Newsletters were initially used at the municipalities to introduce the employees to the Musharaka framework and raise their awareness to it.

Employees also identified that the newsletters were used to keep employees updated on the latest projects and initiatives that are being worked on.

Discussion forums are other forms of social networking tools that were embedded in the Musharaka framework. They were often used by employees at the municipalities to pose questions and identify problems encountered when conducting their daily duties. In return employees benefited from the solutions exchanged between peers. Employees at the municipalities identified that they found this particularly interesting as it exposes them to views from counterparts across the municipalities, new ideas and ways of conducting tasks. Employees mentioned that the posts are searchable and accessible at all times.

The Musharaka framework also included a members list which is a feature of social networking tools that enables the employees to create, manage and maintain their own profiles. Employees at the municipalities identified that this tool enabled them to locate and contact expertise from all around the municipalities. In return, learn from the experience of expertise. Nonetheless, employees at the municipalities identified that finding an expert in the field depended on the expert creating a profile for him/her self and maintaining it. As some employees perceived creating and maintaining their profiles as an additional work to their daily duties and that doing so required a cultural change on the way things are done at the municipalities. This is elaborated in the discussion chapter.

In addition, the Musharaka framework contained some embedded social networking tools components, including: search, authoring, tags and RSS signals. The search option enabled users to locate different information by entering the keyword they are searching for. While the authoring feature enabled employees to generate content

and publish it when it was ready. Tags on the other hand allowed the employees to categorise and classify the posts they are producing, in return making it easier for users to search through the information and content needed. While employees saw the value of tagging their posts, they often felt that it is an added burden to their day-to-day tasks and getting in the habit of doing so required a culture change at the municipalities (this is elaborated further in the discussions chapter). Finally, RSS signals were used at the municipalities to notify employees whenever a new post was posted or a response to an existing one.

A knowledge champion at the project management department provided an example of how the blog and RSS tool were used in their department, participant DMAKC3 mentioned:

*'From a project management office perspective we started a working group and in this working group we have representatives from all the Municipalities and we have been discussing all kinds of topics around the project management office, how to improve project management, we have been exchanging templates in this group etc. And everybody was really proud of what they have done at their Municipality and they were very much willing to share.'*

Another employee described how he feels that social networking tools (particularly wikis, forums and blogs) are valuable part of Musharaka and how these tools enabled them to do their daily work and function, communicating with all the stakeholders involved while minimizing travel, knowledge champion AAMKC4 talking from his area of experience:

*'for example I will talk in my field...if I have a new law or a new decree and I want to implement it in the Emirate ..before getting the approvals to start the implementation we need to discuss it with our stakeholders which are the three Municipalities mainly. Because of the locations and the distance usually people have to travel from across*

*the region or we have to go to them to discuss these things. Now, we can do it through the social networking tools that are part of the community of practice. By posting the law or decree, the draft of it and the people can share their opinions and everything can be documented... So it is like taking minutes of meeting or documentation of what is happening.'*

Moreover, employees identified and recognised the tools capability in bringing people together. The director of the Strategic Planning division, described Musharaka as a framework consisting of three elements: technology, processes and people and identified people as the most important asset and recognised that social networking tools provided a medium for employees to share their knowledge and for others to benefit from it, AAMKMO1 saying:

*'....people are the most important part of the framework that consists of people, process, information and technology. But mostly the knowledge lies in people. social networking tools facilitate the people interaction together. Here in AIAin Municipality we have four internal communities of practice. They really help us to see what people think and it helps employees document their knowledge and their experience with the organisation.'*

A knowledge management champion, describing the value social networking tools add to the Musharaka framework and the concept of bringing people together, sharing and exchanging knowledge, [particularly addressing wikis, blogs and forums](#) participant AAMKC2 mentioned:

*'Yeah I think they (social networking tools) add value because people are sharing their experience and their good practices and their lessons learnt from their project in Musharaka. Other people might embark on the same or similar project and they might get value and benefit from other people's experience by reducing cost and saving their time'.*

Appendix 5 describes in detail the social networking tools that were implemented at the municipalities, their various uses at the municipalities and an account of the experiences of knowledge workers using these tools.

Overall, employees believe that social networking tools that are adopted as part of Musharaka add significant value because they provide a collaborative platform for employees from different interests and backgrounds to come together and discuss a point of interest, with minimal time and cost.

A few employees believe social networking tools implemented as part of Musharaka have the potential to add value but since the municipalities are still at the early adoption stage the value is not fully realised. Some of the employees went even further by indicating that efforts and work needs to be done to reap this value, for instance a knowledge champion from the Strategic Planning and Performance department, participant DMAKC7, mentioned:

*‘it has got a huge potential but those who are governing or managing Musharaka have a really big role to play to continually advertise and promote the usage...it is all about the memberships..’*

In response, upon the second follow up visit, a participant from the knowledge management office identifies that it is a matter of time and identify that social networking tools are the most successful part of Musharaka and she provides evidence, participant AAMKMO1 explained:

*‘the number of people who log in, every day is increasing, the number of requests that come to the Knowledge Management Officers of participants who would like to create blogs or wikis, we can also see from the number of topics..... I think it is the most successful part of Musharaka so far.’*

Once established that employees view social networking tools at the core of Musharaka and that social networking tools added value to Musharaka, the next

section will look into specific knowledge management functions that the literature and pilot study identifies of social networking tools to facilitates and the beliefs employees associate with each.

### **3. Social Networking tools for Knowledge Management and Employee Job Effectiveness**

In line with the existing literature (Martin et al., 2009; Dzamic, 2009; Lavenda, 2008; Van Zyl, 2009), the majority of the employees interviewed identified that they believed that social networking tools had the potential to increase their work effectiveness by enhancing the knowledge management process and the rest identified that it depends on the usage.

Employees provided various reasons for their belief that these tools could contribute to their effectiveness, including being up-to-date with the latest news, projects and terms, WRMKC3 mentions:.

*'Yes ...we have wikis, newsletters, blogs and collaborative workspace. For sure it helps the employees and their job effectiveness as they.. help them keep updated on all the information related to their background. They can create and check the most related terms and glossaries related to their background as well...They post on blogs and discussions..'*

Other employees focussed on the power of participation and sharing experiences, which enable learning from each other's accomplishments and mistakes, AAMKC5 elaborates:

*'As I say it is the participation, it helps.. not all of them for sure.. but it helps most of them to do their job better. If somebody shares his/her experience using social networking tools such as wikis, forums, collaborative workspace or blogs.... We do not fall in the same mistake twice. So this is the kind of help that social networking tools provides to the municipality people.'*

The employees also discussed how they feel that social networking tools that are available as part of Musharaka enable them not only to avoid making the same

mistakes twice but identify and locate expertise and have discussions with them.

Research Participant DMAKC7 mentions:

*yes, they do increase job effectiveness. Well to be honest there are many tools in Musharaka that enable sharing knowledge and expertise.. I don't need to fall into the same mistake other employees fell into before so this expertise would help me identify stakeholders for example. If I don't know all my stakeholders, supplies, communities then I can speak to them in the future at the same time, I learn from other expertise.*

On their vision for Musharaka, the head of the knowledge management office, participant DMAKMO1 identified:

*.. the idea of a social networking tools that are part of Musharaka is that employees reach a point where new regulations and new rules and new decrees and new concepts about doing things would actually be created by the people in a network like this one.*

Other employees commented on the effectiveness of social networking tools for knowledge management in term of having one system that employees can always go back to access and share knowledge, participant WRMKC2 mentioned:

*It should increase effectiveness because if everything is centralised then there is really no point to go make multiple phone calls and ask everybody around because in Musharaka you would have access to the Expert Directory, you would know who is who and if you were to make any requests it is there and you can follow up on the status of these requests.*

Most of the employees focussed on the efficiency of deploying social networking tools for knowledge management and how they facilitate minimizing cost and travel time and the other identified that the effectiveness of these tools depend on how they employees decide to use it: 'If it is used in the right way or on the job it will increase job effectiveness' mentioned participant DMAKC9.

Four of the employees felt that social networking tools enable the knowledge management process and increase effectiveness, however, identified time and



accessibility as an issue. Since the framework now can only be accessed on-site, employees such as engineers who their work is often off-site complain about their inability to access and contribute, hence, the system is not as effective as it could be. Noteworthy, to mention, that this is not a limitation on the tools themselves, the tools can be made accessible from all location, but it's an option that the municipality opted for to increase security at this early stage of implementation.

On the other hand, some employees expressed a need for a change of mind-set of some people who believe that using these tools incur extra time to their already busy schedule, for instance a knowledge champion from the DMA office, participant DMAKC4 mentioned:

*... the short-sighted people will tell you well it is taking some of their time to share knowledge so they are going to take like 10% of their time to do it. Isn't that time out of doing their normal jobs? Yes but that time can be invested in making the other 90% of their time have more productivity that goes beyond the 100% that we were expecting.*

Other employees highlighted the power of these tools and how they enable effective knowledge management by facilitating different resources, allowing team work and accumulating collective intelligence, for instance participant AAMKC3 commented:

*'..Yes there is a big opportunity.. they (the social networking tools) can be enablers of team effectiveness, and already Musharaka has a platform for people to share ideas, to look through documents, to upload'*

Hence, it can be observed that there is an overall belief in the municipalities that social networking tools can increase employee job effectiveness by facilitating the knowledge management process. This is in line with the already existing literature (Van Zyl ,2009; Sinclair, 2007; McAfee, 2006; Schneckenberg, 2009; Martin et. al., 2009; Paroutis and Saleh, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008) that advocates the use of social networking tools for knowledge management to

increase the overall job effectiveness. In the upcoming sections, specific areas in which social networking tools have been said to contribute to the knowledge management process in the literature will be explored with the municipality research participants.

### **3.1 Social Networking Tools and a Collective Platform for Problem Solving**

Knowledge intensive organisations are characterised as facilitating a collaborative learning environment that enables colleagues to share problems and find solutions to these problems collectively (Boshoff and du Plessis, 2008; Brown and Duguid, 2000; Cairncross, 2001; Davenport, 2001; Orlikowski, 2002). The process and discipline of getting employees to work together to find practical solutions to existing problems bridges the gap between procedures and practice (Boshoff and du Plessis, 2008; Brown and Duguid, 2000; Cairncross 2001; Davenport, 2001; Orlikowski, 2002; Van Zyl, 2009). This collaborative environment facilitates free flow of knowledge; although, the flow may be interrupted in geographically dispersed organisations that involve various service lines and departments (Brown and Duguid, 2000) for this may present additional communication barriers. Moreover, it is being increasingly argued that the product of networked people and organisations that are looking for new solutions to specific problem is what constitutes knowledge (Tapscott and Williams, 2006).

There is a general consensus at the municipalities that social networking tools provide a platform for problem solving and knowledge sharing between peers and stakeholders. The people responsible and who have overseen the development of the framework identify that it was 'designed to' enable problem solving and knowledge sharing. Interview findings revealed that using the Musharaka platform employees often asked a question and then people could respond with their

answers. The employees interviewed commended the fact that they can raise an issue and get the point of view of employees from different backgrounds and the viewpoint of different users. A knowledge champion, participant WRMKC3 highlighted:

*I believe social networking tools are valuable because members can ask questions, seek advice, discuss the possible solutions, and share any potential solutions on any issue or problem. It is valuable to learn about what are the common problems and the different opinions in relation to a particular problem.*

Employees also expressed that the nature of these tools allow an informal, productive discussion, over how to react to a certain situation and seek multiple views, for instance, participant DMAKC7 from the strategic planning department expressed this point about using forums, wikis and blogs:

*'...for example even within the community of practice of Strategic Planning one of the challenges we are having is you know the market, the environment is always changing and sometimes you want to reach out to a certain group of people but you don't want to make it too formal... So it's a healthy discussion..you can start generating topics and you can start even exchanging models, .. and assuming the response time is there.. there is really so much you can do. '*

In addition, employees revealed that using these tools they have an opportunity to communicate with their counterparts in different municipalities and learn from their experience to solve a problem. A knowledge champion, participant WRMKC5 from the Western Zone office explained how forums were used:

*'This collaborative platform makes it easy for the peers to provide their opinion or/and their problem. We have a remote area and they share their problems and they solve it through this platform. You can see this in our community of practice.'*

Moreover, employees interviewed revealed that the social networking tools implemented as part of Musharaka enabled even more smoother and faster problem solving, since it connects all employees in real-time. On the future plans for this capability, the knowledge management office revealed that they plan to point out

several problems across different departments and entities and the response with highest ratings will be adopted as a 'best practice' or a 'standard' solution. While this might help the municipality in establishing a repository of best practices, it may present some undesirable challenges. For instance, employees might provide a high rating for a given solution based on the reputation of the person posting the solution rather than the value of the content.

Two of the participants however, advocated face-to-face interaction to solving a problem and believe that problems are better solved through face-to-face with the belief that bouncing forth and back documents and short messages doesn't really encourage the people to think out of the box. Nonetheless, even those participants that mentioned this point believed that social networking tools could facilitate the process of problem solving by providing a platform to exchange documents and to share certain information and for others as a reference library.

In earlier web-based communication technologies for knowledge management, the content was produced and maintained by an independent webmaster who updated the content of the website when the information was outdated or not aligned with the objectives of the organisation and business any longer (Jashapara, 2011). In this sense, the content is 'read only', it can be viewed but it cannot be modified. If any modification needed to be made or in case of any additions, the user would most likely be redirected to an email address of the webmaster who is in charge of the content of the website. While using the most recent generation of web technologies (the social networking tools) employees at the municipality had a role in the development of the content, they were able to add and/or modify content whether it was in text, audio, video or image form. This way, the content is 'user generated' as opposed to read-only. The municipalities' used this capability of these tools to

problem solve, any challenging problem encountered as part of their day-to-day job was raised either through blogs, podcasts or online profiles, in an attempt to collectively find a solution for that problem. Moreover, it can be observed that these social networking tools facilitate group interaction and collaboration, regardless of the geographical location or time zone. This feature is important as it has been identified that employees' interaction and collaboration contributes to knowledge management initiatives success and that the interaction and collaboration often occurs in group contexts (Powell and Ambrosini, 2012). For a group to be successful and innovative a platform for interaction within and across groups needs to be present; a platform that enables groups to share their knowledge and expertise (Van Zyl, 2009) and this case of the municipality it was evident that employees believe that social networking tools do provide this platform.

All in all, employees demonstrated the capability of social network tools in enabling problem solving for knowledge management corresponds to the what has been identified in the literature (Martin et al., 2009; Dzamic, 2009; Lavenda, 2008; Van Zyl, 2009) social networking tools enable the identification and discussion of problem between a group of people until an optimal solution is achieved.

### **3.2 Social Networking tools and reducing organisation resource wastage and reinventing the wheels**

Hierarchal organisations in which knowledge workers are divided in terms of specialist lines of processes or services, makes weak ties significant for employees to be able to acquire access to specialist knowledge and information that is available in other lines of services (Granovetter, 2004; Van Zyl, 2009). In situations where employees have to reinvent solutions to problems that have already been established by another employee within the organisations, organisational resources

are wasted in the process (Brown and Duguid, 2000). In an ideal knowledge management system, knowledge is non-rivalry and it should only be produced once (Van Zyl, 2009). Any added resources incurred should increase its value and accuracy to minimise mistakes and difficulties encountered in the past (Benkler, 2006; Van Zyl, 2009).

There is an agreement amongst all employees interviewed that social networking tools have the potential of reducing organisational resource wastage by minimizing reinventing the wheels. An executive consultant at the knowledge management office mentioned that this was one of the reasons they opted to adopt Musharaka. They have noticed that there was a duplication of work across different departments and unnecessary efforts put and resources were wasted in the process, hence, they implemented Musharaka to reduce this wastage.

Employees interviewed believe that social networking tools has the potential to minimise organisational resource wastage by providing a centralized platform for knowledge access, retrieval and sharing. This platform enables employees from within divisions and across different municipalities to access information regarding projects, reference libraries and discussions. The municipality started to put these capabilities in place by applying two initiatives; lessons learnt blog after every project and an induction program for new employees. The head of the knowledge management office, DMAKMO1 described these two initiatives [that were achieved using the wiki social networking platform](#):

*'Induction was one thing because it had been done differently for everyone. We decided to standardise it so that everyone had the same set of information at the start, one pack that was used for everyone. Templates we wanted to upload so that people weren't creating their own forms every time, there was like a standard set of templates.....'*

*'Lessons learnt was another initiative that we implemented. We created a process that after every project or big event employees would have a meeting and someone would record what went well, what they could improve in the future so that those lessons learnt were all stored as well. Again people can have access and not make the same mistakes. All of the documentation they create is simply put on the Musharaka so they can reuse it. '*

Hence, when the new joiners start at the municipality, they do not need to start from scratch. They have the information documented, published and they can view it and learn from it. Therefore, when required they can access this information, it is published with a classified date, author and etc.

More than third of the knowledge champions interviewed did not only comment on the ability of these social networking tools in allowing knowledge to be re-used but also on the speed of diffusion of this knowledge, for instance one of the knowledge champions, participant DMAKC5 elaborated:

*Once a solution or a good solution is developed, innovated or created in one entity it can easily be shared amongst the other entities much faster than if such a network did not exist.*

Nonetheless, a group of employees identified that it all depends on how active the communities are. They identified that the more people participate the more it will be effective. Therefore, it can be concluded that people participation and stream-lining processes is important to reap maximum benefits from these tools, AAMKC3 elaborates.

*You know what I have seen from working in Municipalities, people take the lead from the more senior people in the organisations so there is a lot of respect and guidance from the senior people in the organisation. And they give the buy in to something then that usually would push any initiative along. If you enforce it in some way or incentivise it in some way.*

To sum up, there is a solid belief that the presence of social networking tools for knowledge management reduced organisational wastage by minimizing duplications

and repetition of work, however the more the participation, the more potential benefits will be achieved. This fits in with the literature in the field, describing social networking tools as contributors to minimizing organisational wastage (Van Zyl, 2009) and the importance of participation in this platform to achieve rich information and knowledge (Paroutis and Saleh, 2009).

### **3.3 Social Networking tools and the Aggregation of Information in an efficient, easy to retrieve and share manner**

It is often the case that knowledge and information go across many types of communication tools, document formats, desktop applications, and sources within and outside the organisation. They also come in different forms: emails, faxes, manuals, presentations, spreadsheets and instant messages (Van Zyl, 2009). Bringing together and integrating different modes of computer mediated communications into one application enables knowledge workers to aggregate information in an efficient manner (McAfee, 2006), by enabling knowledge workers to add labels (through links, tags and social bookmarks) in an attempt of easing the process of knowledge retrieval and sharing (Brown and Duguid, 2000; Cairncross, 2001).

It is argued that with the use of social networking tools, an organisation can create online resources that capture all the collected intelligence of the organisation by allowing knowledge to be documented, searched and shared (Cairncross, 2001; Van Zyl, 2009). Specific examples from the literature include, firstly the features of tagging and social-bookmarking that provides colleagues with the opportunity of searching and locating experts and benefit from manuals, articles, blogs, wikis and other information that the experts find helpful. In return, reach to answers and solutions without disrupting them with telephone calls, emails and instant messages



(Godwin-Jones, 2006; McAfee, 2006; Van Zyl, 2009). Secondly, the process in which users add to discussions, decisions making and planning when their time permits it, in an open platform, without the need to send and resend emails to all participants (Ariyur, 2008; McAfee, 2006; Van Zyl, 2009). A third example presented in the literature (Godwin-Jones, 2006; McAfee, 2006; Van Zyl, 2009) is the process that users having open access to latest version of documents and are able to collaborate and contribute to the comprehension of the document by adding commentaries and links to external sources.

Employees at the municipality identified that they use emails for one-to-one communications to discuss time critical matters, private conversations or confidential information and they believed that resorting to social networking tools for one-to-many communication and many-to-many communication was more reasonable. For instance blogs enabled one-to-many communication by allowing employees to 'push' ideas to a large group of audience, allowing traditional communications such as newsletters and provided informal forums for discussing issues and answering questions. Moreover, wikis for instance enabled many-to-many communication by allowing questions and answers, joint planning and decision-making and knowledge capture and classification.

The municipality heavily invested particularly in this area of aggregating information in an efficient manner, in which it customised an advanced, bilingual (Arabic and English) search capability as part of Musharaka framework. They contracted one of the famous search optimisation companies in the world to implement a very high capable system that helps users find out the details or information required at all levels. Participant MC1, a member of the team from Mouchel consultancy, the organisation that deployed this project for the municipalities, commented:

*I think with something like Musharaka yes (the information is easy to retrieve) because we tagged everything properly with meta data....we spent a lot of time making sure we had the right taxonomy so that everything is easily searchable. And there was a lot of technology that went into that.*

The employees who have used it commended it, for instance the head of the PR department at the western zone municipality, participant WRMKC4 mentioned:

*‘Oh, yes, we have tried it to be honest. I mean we publish news, we publish images and sometimes we need to search for those images and for technical reasons we were not able to get them from our library so we go back to Musharaka and got the information and data we need.’*

The rest of the employees also felt confident about the capability of searching for information in the social networking platforms provided. There was a general understanding that the municipality employed one of the most advanced search engines (some employees compared it with how effective Google is) amongst the employees, even the employees interviewed who did not come from a technical background were aware of this and acknowledged it.

The information is classified by name, topic, author, date and etc. making it easy to locate, retrieve and access the information. Nevertheless, employees also highlighted the importance of getting users in the habit of tagging information, DMAKM05 mentions:

*Yes I mean the system is there for that (allow easy retrieval and search of information) ...but it needs personnel in the organisation to drive the use of that...gradually develop a culture using these systems.*

To encourage the usage, the municipality created competitions and award for people who were the main up loaders or who produced the best quality documents and etc. Employees identified that the knowledge management office needs to create more of that to create this culture of people using the system and in return the system

becomes more efficient and making the organisation more efficient overall. This will be explored further in the 'rewards system' section of this chapter.

To sum up, employees at the municipality identified that the Musharaka framework provided a unified platform that employees can use to create, capture and share knowledge with a large number of employees at their own time; this is in line with the existing literature (Van Zyl, 2009; McAfee, 2006). The knowledge management office at the municipalities have also identified that searching and locating required information should be easy using the tagging and labelling features of social networking tools, nonetheless, it is taking them time to get the employees into the habit of tagging their posts. It could therefore be concluded that within this case study, social networking tools provide the benefit of one platform in which accumulated wisdom could be developed in, shared and accessed, however efforts need to be made to acquaint the employees with the usage of these features of the tools. As will be discussed in the 'Organisational Culture' section of this chapter, the municipalities described this transition as a 'cultural transformation', given that the scope of this change is not at an operational level only but requires a change in the mentality of employees and how they go about doing their job.

### **3.4 Social Networking Tools and Locating Expertise**

Brown and Duguid (2000) identified that knowledge is associated with the knower, knowledge is embedded in the knower, and to become a knower a person needs to be committed to understanding the information presented to him/her. In an organisational sense, knowledge consists of the experiences, skills and the practical knowledge of how the organisational processes operate (Orlikowski, 2002). It is argued (Van Zyl, 2009) that using social networking tools employees have the ability to create a global list of contact details of people who they already know and have

strong professional ties with, whether they were co-workers, peers, colleagues or clients. Ones in which they trust and are confident to be associated with and recommend to others (Van Zyl, 2009). Compared to the prior electronic directories, this contact list is different since the information is linked directly to the profiles created and is maintained by the contact himself, enabling automatic updates of changes to contact details, current activities, interest, skills and expertise (Van Zyl, 2009). The relationships acquired can be exploited further for recommendations and introductions (Boyd, 2006; Gorge, 2007; Granovetter, 2004; Van Zyl, 2009).

All employees interviewed believed that social networking tools have the potential to introduce them to a global list of contact details and ease the process of locating expertise. Employees expressed their contentment towards these technologies for according to them; it enabled access between their counterparts in different municipalities and experts from across municipalities, AAMKMO3 mentions:

*Yes, this is already happening today. A lot of employees across municipalities do not know their colleagues in Al Ain or Abu Dhabi that are doing the same job. When you have a social networking community then you can find out who are the people with the same interest or a set of different skills..*

Research participant WRMKC5 elaborates:

*People from different areas posted their profile and if we are interested in such an area we can find an expert from another entity. For example if an engineer has a project he can find an expert in tunnels or in bridges in other entity and he can use their expertise because at the end we are one organisation.*

Nonetheless, given that these tools are in the early maturity stage, the database of expertise is still not rich. The knowledge management office identified that in time, they expect the number of profiles to grow. As a result of the second follow-up visit, an increase in the number of profiles was observed.

The majority of the employees commended the system in terms of easily searching and finding expertise, but feel more needs to be done. As currently, it is voluntary for the employees to create a profile or update it. This was evident in a consistent series of responses by knowledge champions, participant AAMKC4, followed by participant WRMKC7 stated:

*‘Yes in Musharaka there is a directory of the people, knowledgeable people and expertise but it depends on the person itself if he updated his profile on Musharaka so you can find a specific expert, or a specific activity that he is doing’*

*‘Musharaka is equipped for that but as it is on voluntary basis what you put into the system there may be experts within the Municipalities that you don’t find through Musharaka simply because some people have elected not to put their complete profile on the system.’*

The employees believe that there needs to be some kind of policy or procedure to mandate all employees to share their profiles and integrate it with their emails and office phone, in order to reap maximum benefit from the tools and expertise. The municipality plans on expanding this capability in the future so that it connects not only employees across municipalities together but also employees across all government institutions, academia and clients. A senior manager in the knowledge management office, participant ADMKMO1 commented:

*The whole framework idea was after the project is completed, the next step was to connect to other government entities. So, for example, now we have lots of work in health and safety, we might have to interact with the Ministry of Health and so on . So we need to have this system operating and integrate some knowledge base with institutions like UAE University there is lots of work on the Department of Municipal Affairs, so why not have an expert at the University be available somehow on this system. That is all possible.*

On the second follow-up visit, the municipalities have identified that they are in the process of contacting governments to establish the linkage between the Musharaka framework and across the different government entities. Hence, it can be observed

that social networking tools have the capability of bringing experts together to share and exchange knowledge, this is aligned with the views in the literature (Van Zyl, 2009; Sinclair, 2007; McAfee, 2006; Schneckenberg, 2009; Martin et al., 2009; Paroutis and Saleh, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008) that advocate the use of social networking tools for knowledge management. This will be developed further in the discussions chapter.

### **3.5 Social Networking tools encouraging a culture of sharing and increasing job motivation**

One of the biggest challenges managers face is the sustainability of staff morale and job satisfaction while instilling discipline and productivity (Mitznberg, 2011; Alvesson, 2012; Van Zyl, 2009). Tapscott and Williams (2006) argue that the open platform of social networking tools can facilitate collaboration, create a culture of sharing and increasing job satisfaction and as a result increase productivity (Van Zyl, 2009). Smith and Kollock (1999), argue that one of the motivations for people to contribute knowledge, expertise and time without receiving a direct benefit in return is expecting to receive useful assistance and information in return (Graham and Hall, 2004). As a result, this can lead to a culture of sharing expertise and knowledge (Van Zyl, 2009).

The employees gave mixed reviews when asked if they felt that the social networking tools encouraged a culture of sharing and in return contributed to an increase in job morale and motivation. A group of the employees responded that yes, it does have the potential to increase job morale and motivation since it's a new tools so employees are excited about trying a new platform to share their knowledge. Other employees believed it does have potential to increase job morale and motivation since employees have an open platform to communicate knowledge and

collaborate within and across municipalities. A knowledge champion, participant AAMKC8 explained:

*‘Yeah of course (it creates a culture of sharing than in return contribute to high job morale) because it’s a way of increasing the communication between employees. It encourage open communication, from their offices, employees can communicate with other people from different municipalities without meeting face-to-face’*

A group of employees felt that social networking tools create a culture of sharing and in return contribute to improved job morale since employees had the opportunity to share their news, project updates and successes particularly using the newsletters that are part of the social networking tools platform. DMAKC2 mentions:

*When people succeed in something them like that to be celebrated and when you are in a social networking community it is celebrated and there is recognition. Sometimes that is enough of an incentive even without the monetary incentive.*

Employees also believed that by helping others solve problems or contributing to a blog and being recognised in your area of expertise is another way in which these tools create a culture of sharing, and in return improve job morale and motivation, two knowledge champions commented, firstly participant DMAKC5 and secondly participant AAMKC6:

*‘Recognition is a very strong incentive as well. Being portrayed in front of others that you are an expert, that you have found a solution that has been adopted by others ... is a good incentive as well.’*

*‘Of course it will increase job motivation... the staff will see that a discussion or his idea or anything else is written under his name and the others get to see it and make comments on it.’*

Noteworthy, one of the differences between existing knowledge management systems and social networking tools is the ability to reward contributions through ratings, feedback and the creation of a following (McAfee, 2006; Van Zyl, 2009). As a result, each participant acquires a digital reputation; this reputation facilitates the recognition of a user’s participation to and beyond the immediate group and

allocates value on the user knowledge and knowledge creation capabilities (Brown and Duguid, 2000; Smith and Kollock, 1999). It is argued that this increased transparency and visibility satisfies a user's desire for recognition and prestige amongst their peers and colleagues (Van Zyl, 2009; Smith and Kollock, 1999).

Employees at the municipality explicitly mentioned this point, they indicated that to have his/her name associated with the post and to be recognised in their field as an expert was self-fulfilling and job satisfying. Participant DMAKC9 mentions:

*Recognition is a very strong incentive as well. Being portrayed in front of others that you are an expert, that you have found a solution that has been adopted by others ... is a good incentive as well.*

Furthermore, there was some evidence of members who have maintained a digital reputation at the municipality, Research participant WRMKC3 elaborates:

*Of course it will increase job motivation... the staff will see that a discussion or his idea or anything else is written under his name and the others get to see it and make comments on it.*

However, it became evident in the case that for employees to use the unique features associated with social networking tools (for example: links, rating and tagging, etc.) required time, practice, training and a cultural transformation. Hence, it can be observed from the municipalities' case study that employees believe that social networking tools contributed towards a culture of sharing and in return have the potential to increase job satisfaction; nonetheless it's a gradual process for employees to get in the habit of using the unique features of social networking tools that allow social feedback, rating and linkage.

Some employees agreed with the above, however believed that in the long run, incentives need to be made to encourage the usage as these tools alone are not



enough to sustain the momentum. A knowledge champion from Alain, AAMKC7 elaborated:

*‘in the beginning they might be happy to do it later on they will say why I am doing something I am not getting even paid. In the end you will have a certain objective you need to achieve whatever contribution you do if it is not recorded, you are not acknowledged and it is not part of your objective, it will unfortunately be meaningless.’*

Therefore, it can be observed that in this factor social networking tools for knowledge management may encourage job morale and motivation there is some controversy amongst the responses from the employees. As opposed to the literature, that predicts that the use of these tools do improve job morale. This could be due to the tools being still in early implementation stages or the different nature of people in general.

#### **4. Factors Influencing Employees Decision on whether to use Social Networking Tools for Knowledge Management (or not)**

So far municipal employees’ beliefs towards social networking tools enhancing the knowledge management have been presented. The general belief is that social networking tools add a significant value to the knowledge management process. Nonetheless, the usage of these tools at the municipality is currently not at a high level. Some employees argue that this is due to the tools being in their early stage of implementation. This section focuses on the factors influencing employees usage of social networking tools for knowledge management, specifically why they decide to use these tools (or not).

##### **4.1 Ease of Use**

There was a general consensus upon all employees interviewed that the social networking tools that are applied as part of Musharaka were easy to use and straightforward. Nonetheless, there were several remarks and observations made.

The first one was that social networking tools for knowledge management were more appealing to the younger generation, new employees or information technology major graduates, who have probably covered some elements of social networking tools in their studies or use these tools in their personal lives. There was a general agreement that these groups of employees were more comfortable using social networking tools to share and exchange knowledge. A knowledge champion from DMA (DMAKC6) and one from Western Zone (WRMKC2) mentioned:

*'We have to be fair all these social networking tools were not here 20 years ago ...the younger generation are probably being taught about social media and networking tools in universities..'*

*'Again it depends on the background of the person. For example if you work with an IT person, IT people are encouraged to use the system, they are curious to know what is behind the system. But some people don't..'*

Nonetheless, despite not being taught about social media and networking tools in universities, employees identified that social networking tools are not hard to learn to use and in fact given their pervasive nature and with the IT revolution employees were learning fast.

Other employees argued that it is not about the ease of use, these technologies are easy to use but it depends on how an employee is used to doing his/her job and how they design it and go about implementing it. This point will be discussed further in section 4.7.

There were several suggestions made to make the technologies more appealing and attractive. Although the Musharaka framework is professional and customised in a work related manner, some employees felt it is rigid and lack appeal compared to the social networking tools used in their personal lives. A PR employee at the municipalities, participant WRMKC4 described what he would like to see:

*'New stuff.. enrich me with something I don't know.. for e.g. when I log into Yahoo to check my personal email I find it hard to put my password and username because the news and the cover page is really attractive... different type of news is posted. I check all the timeline before logging in...so Musharaka has to have something.. that attracts your attention every time you open it'*

Hence, employees are calling for a more appealing design and suggested news coverage at the forefront of the framework. Noteworthy to mention, there is a news section currently in place but it is out-dated and needs to be updated regularly.

Therefore, it could be observed that social networking tools are not complex in nature and are easy to learn but it tends to be more appealing to the younger generation and employees with an IT background. To attract other users, the interface needs to be more eye-catching and friendly. Some of the existing literature highlighted this appeal, others were more optimistic indicating the pervasive nature of these tools and how employees will demand their presence in organisations (Van Zyl, 2009; Sinclair, 2007; Martin et al., 2009). This will be developed further in the discussions chapter.

#### **4.2 Demanding Schedule or use in an unproductive manner**

The second factor that influenced the participants' decision on whether to use social networking tools for knowledge management (or not) is the working schedule. Some of the participants interviewed agreed that employees may not be using social networking tools due to their busy schedules. Other participants felt that employees may not be using it due to 'lazy' nature, for e.g. asking a colleague to send a document that is available in Musharaka instead of looking for it himself. The rest of the participants identified that work is demanding everywhere and since employees have the time to use their Blackberry messengers and blog in websites, they must have the time to blog using Musharaka.

However, there is a consensus that employees should view it as a tool that enables them to do their day-to-day jobs. Words that have been used frequently are that using these social networking tools is a matter of 'culture' or a 'lifestyle'. Once employees start to use these tools and realise its benefits, they will go back and use them again with a belief that they do not add into their day-to-day busy schedule, instead empower them to do their day-to-day job more diligently. This is in line with the existing literature in the subject, employees are hesitant to use social networking tools for knowledge management due to their busy schedules, however, these tools should complement employees' day-to-day work (Van Zyl, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008).

On how to achieve this 'lifestyle' or 'cultural change', or transition, employees suggested different ways: firstly, to educate and raise awareness for instance one of the initiatives that the municipalities undertook was to make Musharaka the default homepage that appears when an employee open his/her browser and to make it look interesting with the latest news relevant to the municipality incorporated. The aim here was to raise awareness and try to build interest and incorporate a 'fun' factor into it so that it appeals and attracts employees and once users try the system, they gain a better understanding of its functionality and usage. Secondly, the research participants believed that incorporating social networking tools into their day-to-day jobs will encourage usage, this way employees get to use it, realize its potential and it becomes a habit. Half of them agreed that it needs to be reinforced, the others felt there is a need to allow the employees to try it out in their own time and see its benefit and eventually they will become a regular user. Thirdly, the employees suggested awards to be given to employees for their participation and fourthly, the

participation of top management in the blogs or communities. These points will be explored further in later sections.

Some of the literature identified that there is a fear employees will use the social networking tools in an unproductive manner (Van Zyl, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008), nonetheless in the scope of this study; this factor did not concern the research participants. There was a general consensus that Musharaka was designed professionally in a way that serves work purposes. Knowledge champion, WRMKC4 mentions:

*Not Musharaka because there is nothing really that they could do that is unproductive unless they wrote a blog about what they do at the weekend sort of thing. But other than that I don't think so.*

Some participants identified that the productive or unproductive usage depends on the participant him/herself. Nonetheless, it does not appear to be a significant issue at the moment.

#### **4.3 Validity of the content**

The third factor that was mentioned in the literature as a concern that may prohibit the usage of social networking tools for knowledge management is the validity of the content since it is user-generated (Van Zyl, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Responses varied in terms of the concerns on the validity of the content in social networking platforms. Some research participants did not see it as a serious concern as the system is quite transparent with the name of the author and credentials included. For instance, two knowledge champions from different municipalities provided their opinion in this issue, participant WRMKC1 and DMAKC9:

*'I think there is no space for people to bluff around..I mean everybody knows everybody so one cannot put false information.'*

*'I do not really see it as a concern. There is a defined visibility for Musharaka. So when people publish something they know the visibility of this is and what it means to publish.'*

Other participants did not see it as a concern as there is a certain process to monitor the content being published. At the municipality each community is assigned a leader and an administrator who are responsible for monitoring the information before being published. For example if there is a misuse of information or some information was confidential the Community Leader and the Community Administrator are monitoring the feeds and they are in charge of their Community so they see it every day they keep up to date on all the blogs, wikis and newsletters. The community leaders and administrators see what kind of information is published and the flow of information and they have the authority to delete or to modify some wording. If the information that is being published is at a municipality level it goes back to the Knowledge Management office for approval.

Other research participants viewed the content validity as a concern and called for certain procedures or measures to be implemented to ensure content validity.

Research participants DMAKC7 elaborates:

*Yes, I have concerns about validity because blogs and these tools provide freedom... policies and procedures need to be made with legal dept. so that employees sign an agreement before they start..*

Some realize that there are some certain procedures and measures in place but they are not enough or mature yet. DMAKMO4 explains:

*given the nature of participation, employees provide their opinion and opinions differ from one person to another and the team in charge of validating the content do not have much of experience in that field to say this is valid or not valid. Hence, the knowledge management office is working on trying to improve the criteria for validating information.*

Other participants recognise that content validity is the case of any social networking tools and that the system rectifies itself by itself, a member from the knowledge management office, participant ADMKMO2 commented:

*‘As in any social content, social network in the world.. Content is definitely the opinion of people. Even Wikipedia has that disclaimer that ‘this is an opinion it is not verified’. That is true but the system fixes itself, if someone sees something wrong they will write something that tries to correct it.. and then at the end what is written there is not a policy it is not a workflow that needs to be followed.. it is simply a suggestion, a sharing of information so it is up to people to decide what to use and what not to use.’*

Nonetheless, all participants interviewed across all these categories agreed that content validity was not a major issue at that moment and is not a reason that have stopped them from using the Musharaka social networking community tools, nonetheless, they recognised that there is a need for a well-established policies and procedures that monitor the information feeds.

#### **4.4 Security of the Platform**

The fourth factor identified in the literature to affect the decisions of employees on whether to use social networking tools for knowledge management or not is the security of the platform (Van Zyl, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008). Interviews at the municipalities with regards to security concerns prohibiting knowledge sharing in social networking platforms revealed that at the moment security is not a main concern; however similar to the above discussed factor, a statement of use or a policy or procedure needs to be established for the future.

There is a general belief amongst employees that the security criteria was considered during the design stage of the Musharaka framework and that state-of-the art tools were implemented. In addition, at this stage, the Musharaka framework and the social networking community is only accessible internally to employees

within the organisation and hence, research participants do not see an external threat to security. In terms of internal threat, employees seem to believe that the threats of these social networking tools are not unique compared to any other means. Also, there is a general sense of comfort in terms of the security being under control at the moment due to the transparency of the system. A knowledge champion, participant AAMKC5 commented:

*'If a person is going to write a blog, wiki or put a newsletter or do anything in the social networking community, the system shows their name publicly not only for us as a knowledge management office but publically. So if they misused the system or they used it for any other reasons we can identify them'*

Nonetheless, there seems to be a general consensus amongst all research participants that a certain set of regulations need to be in place to eliminate misuse of the system and inform employees on the consequences of security breach. Two knowledge champions across different municipalities, participants DMAKC8 and WRMKC6 commented:

*'Yeah there should be rationale behind publishing any document. I wouldn't publish certain information about a project which is not approved by the government yet. There should be a statement of use or a consent box you need to tick before you publish..that you understand and agree on terms of conditions'*

*'Well of course when you have a blog or a Wikipedia structure it will depend on the people who are using it. To manage the security you need to put policies, you need educate people about the security policy what to share and what not to share because anybody can just copy a document and just put it there and it would be a top secret document. Now you can't prevent that person, you can educate them.'*

The majority of the research participants added that once a security policy is established, the municipality should raise awareness and educate their employees on the security policy, what to share and what not to share because anybody can just copy a top confidential document and just put it online for everyone to see. Therefore, it can be observed that employees called for more awareness programs



and a set of guidelines and codes to be put in place to ensure the security criteria is met. Nonetheless, whilst the employees felt that there is some work that needs to be done, at this stage of Musharaka, they felt somehow confident about the security of the platform and contrary to the existing literature (Van Zyl, 2009; Dzamic, 2009; Lavenda, 2008; Middleton, 2008) they do not see it as a major factor deterring the decision of the employees to use the Musharaka framework.

#### **4.5 Rewards System**

As have been identified in the literature review in chapter three, implementing a rewards system to encourage the engagement of employees in knowledge management initiatives have been identified as essential in the current literature (Dalkir, 2011; Oliver and Kandadi, 2006; Gruber and Duxbury, 2001). Some authors advocate tangible rewards such as monetary compensation (Gruber and Duxbury, 2001), others lean towards a more intangible type of rewards. These social types of rewards may include: approval, status, positive feedback, recognition, respect and praise (Ardichvili et al., 2003; Wasko and Faraj, 2005; Hsu et al., 2007). Nonetheless, very few studies identified implementing a rewards system is essential as part of applying social networking tools for knowledge management (Paroutis and Saleh, 2009). This could be due to the novelty of the latest wave of social networking tools being applied for knowledge management. Moreover, some authors went as far as describing social networking tools for knowledge management as self-rewarding (Sinclair, 2007; VanZyl, 2009) given the features of social networking tools that enables the user to 'author' the content himself, and gets peer recognition through the 'ratings' they receive in return. Hence, this could be a potential reason behind the minimal literature on implementing rewards systems to encourage the usage of social networking tools for knowledge management.

A recurring theme that became evident from the interviews is the need for a rewards system to be in place to encourage knowledge sharing and participation through the social networking community platform. This factor has not been originally in the template, for it was not emphasised in the literature of social networking tools for knowledge management. Nonetheless, it was added at a later stage of the modification due to it being highlighted by the research participants constantly. Some research participants called for financial rewards, others for non-financial incentives and the majority felt that there needed to be a mix of both, a member of the knowledge management office, ADMKMO1 comments:

*'For anything to become a culture it takes time and it takes behaviour but you have to entice people to get the excitement to start using it because it is a bit of a change in behaviour.'*

When the 'Musharaka' framework just got launched, the municipalities engaged their employees in activities to establish a practical understanding of the system, build content and encourage its usage. The activities involved developing the Musharaka electronic library in which the employees submitted electronic documents into the social networking platform to make them accessible to other members of the municipality, in return it was open to all employees to benefit from, in addition, employees were encouraged to post the lessons learnt from projects for all members of the community to learn from. The employees that have demonstrated enthusiasm and posted the most were given a certificate or a thank you note for their participation.

The research participants acknowledged the above and identified that this mechanism encouraged exchange of ideas and knowledge, nonetheless, they revealed that this was not practised anymore and if it had employees would have

been more adoptive of the system. The employees felt by using the system they get peer recognition that is valuable but that is not the same as getting recognition from higher management.

The participants expressed an urgent need for the system of reward to be formalised and for the Human Resources (HR) Department to be involved, either by linking it to employee key performance indicators or the HR appraisal system. The employees also suggested having a constant award in place for e.g. knowledge employee of the month or the most active participant of the month. There is a general consensus that employees feel a sense of achievement and recognition in seeing their name mentioned in the system or at the annual luncheon as the knowledge employee of the month.

A couple of participants believed that there should be some type of reward to encourage participation in the knowledge enriching process using social networking tools platforms but warned that it needs to be implemented in a smart way to ensure quality and motivated participation. A knowledge management champion from the operations department, DMAKC4 commented:

*'People always look for reward it's a good tool actually to entice and attract visitors but it has to be done in a kind of sensitive, smart, indirect way that the more you use it the more you get rewarded, probably not financially but a different type of reward. Recognition maybe, photographs maybe. Stuff like that. People are always interested in having their name posted in a government portal.'*

Hence, it can be observed there is a need for a balance to be established between a formal reward system without compromising the quality of the submissions or people just participating for the sake of being awarded but there is no substance. This is in line with the existing literature in quantity vs. quality (Powell and Ambrosini, 2012). Nonetheless, this point is controversial to what have been mentioned in the literature

(Sinclair, 2007; Van Zyl, 2009) about the capability of these tools to generate instant, self-reward by creating an electronic reputation of yourself in which you add a valuable post and people can comment on it and 'like' it for in this case study instance, employees expressed that one of the factors that determine their usage of these tools for knowledge management is to feel rewarded by management or financially in some way. This could be due to the fact that the tools are still at the early adoption stage and employees are still not used to them and need to be recognised and rewarded until it can become a culture or a habit. This will be highlighted further in the 'organisational culture' section of this chapter.

#### **4.6 Managerial Support**

Similar to the rewards factor mentioned in the earlier section, this factor was not identified in the original template as a factor influencing the decision of employees to use social networking tools for knowledge management. Assuming that since the top management gave the approval to implement this system and invested a huge budget on the design and implementation of the framework, employees in return will feel inclined to use it. Nonetheless, while conducting the interviews this became a recurring theme, which resulted in adding it in the template for analysis.

Scholars identified the vital role top managers (Mintzberg, 2011) and middle managers (Barton and Ambrosini, 2013; Floyd and Wooldridge, 2003) play in the implementation of any strategic initiative. The existing literature (Dalkir, 2011; Gruber and Duxbury, 2001) on the implementation of knowledge management initiatives also highlighted the importance of managerial support. This has been reflected in chapter 3, as part of the literature review. Nonetheless, very few has been written (McAfee, 2006) on the role managers play in the implementation of social networking tools for knowledge management (Paroutis and Saleh, 2009) and the ones that have

written did not do so in detail (Schneckenberg, 2009; McAfee, 2006; Paroutis and Saleh, 2009).

The research participants at the municipalities identified that managerial support plays an important role in the adoption of the social networking tools amongst employees. For instance, AAMKC6 mentions that managerial role is:

*... very, very important (managerial role). The manager is the person who might make the social networking community effective or not. and I can see this in the four communities we have in place.. the most effective manager reflects on the effectiveness of the community itself.*

More than half of the participants even went further by describing managerial support not only as important but 'the most important' and identified that managers determine the success or failure of social networking initiatives in government organisations. Research participants attributed the aforementioned to the fact that leadership is necessary for any change management initiative to succeed and Musharaka framework that is utilizing social networking tools for knowledge management is a novel concept to the municipality employees, an example from the Abu-Dhabi Municipality was provided by ADMKMO2 a member of the knowledge management office:

*as an example here the previous leadership, were going towards de-centralisation. As a result Abu-Dhabi Municipality didn't even participate in Musharaka. The new leadership believe in centralisation so now everybody wants to unify, everybody wants to share the same tools, share the same process. But where did it come from, it was leadership that decided and people followed.*

Not only is knowledge management a new concept to the municipalities but the culture of the municipality is based on face-to-face interactions and a paper-based system to store and share information rather than electronic means (this will be explored further in the next section). Moreover, the participants identified that a power structure existed in the municipality in a sense that if a manager uses or

encourages the use of social networking tools, then the employees will get engaged and start using it. WRMKMO2 emphasises:

*.... if the manager or division manager start to encourage people to use it and they are using the system themselves, all employees will understand the importance of it. But if the management are not taking care of these things, I as an employee will not use it.*

In addition, some employees that were interviewed saw the need for managers to be involved in the process of adopting social networking tools for knowledge management since it provides the employees working under him/her with a sense of comfort and security. Employees gave the example of the Municipality in the Western Region, where the culture is quite conservative there, they felt the participation from management will make them feel at ease that 'no one will be out to get them' or/and negative repercussions resulting from their participation would be minimised.

To sum up, there is a general consensus amongst all interviewed that the role of managers cannot be underrated, especially in the Municipalities in which, the employees follow the lead of the manager. Hence, there is a solid belief that managers have to lead by example, reward usage of the system and have to recognise the benefits of the system for employees to adopt it.

Currently, there is a sense amongst employees that senior management by default agree with the concept of Musharaka utilizing social networking tools for knowledge management and high level strategically they want it to get done as they know it is going to be very useful. However, employees feel that these senior managers are bombarded by many different issues that they are not giving enough attention to Musharaka framework. Employee did not feel that it is being treated as a priority at

the moment, which has affected the adoption of these tools and in return maximum benefit from these tools is not met.

The research revealed that out of the Department of Municipal Affairs and the three different municipalities, Abu-Dhabi Municipality is the one that was affected the most from lack of managerial support. Although the Abu-Dhabi Municipality is considered the main branch, given that it is the capital of the United Arab Emirates and holds the majority number of employees, the Musharaka framework is not realised there. This was because it was believed the high level management there did not appreciate the value of the Musharaka framework and up until recently and only when there was a change in management, did the Abu-Dhabi Municipality have its Musharaka framework up and running.

The Department of Municipal Affairs that are responsible to monitor the framework in the three different municipalities have now recognised this challenge and is working on getting managers more involved to encourage the usage of the framework. The head of the knowledge management office at the Department of the Municipal Affairs and across all three different municipalities', DMAKMO1 commented:

*Managerial support is very important. It helps us or it help the social networking community to have more valid information as the top management is aware of what is written there and this will help as well to get more buy-in from the employees or end users as long as they know that top management are watching what the write.*

To achieve this, the head knowledge management office mentioned on the second follow up meeting that they are is planning to launch a Community called 'Ask the Chairman' and this community will be established soon and will enable employees to ask the Chairman any question regarding the whole municipal system and to solve the issues relating to the municipal system. In return, it is believed that this should help encourage people participate and will get their buy-in. Noteworthy to mentions,

on the second visit to the municipalities, the 'Ask the Chairman' community was established and it had been confirmed that it encouraged participation amongst employees.

The existing literature (McAfee, 2006) does highlight that there is a role for managers to play in the implementation of social networking tools for knowledge management but some advocate a more passive approach whilst others feel they need to be engaged at every part of the process. This will be elaborated on further at the discussions section.

#### **4.7 Organisational Culture and Structure**

The existing literature (Alvesson, 2012; Alavi et al., 2005) highlights the role of organisational culture on the success of knowledge management initiatives. It has also been demonstrated in chapter three how organisational culture intersects with knowledge management. Organisation culture is one of the key enablers to effective knowledge sharing within and amongst organisations (Becerra-Fernandez et al., 2004; Dalkir, 2011). Nonetheless, the literature on the culture and environment of an organisation and the adoption of social networking tools for knowledge management is limited (Schneckenberg, 2009). Hence, it was not included initially in the analysis template. However, the topic surfaced after the first set of interviews and its importance has been highlighted, therefore, I added it as part of the modified template.

There is a consensus amongst all research participants that the environment and the culture of the organisation are important factors for the decision to adopt social networking tools by employees. Prior to Musharaka, a few of the employees were aware of the concept knowledge management and the idea of using social networking tools to share and capture knowledge. They were heavily reliant on paper



systems as opposed to technological systems; employees saw no value to adding their content to Musharaka or were worried their content was not good enough. In collaboration with Mouchel Consultancy Company, the Department of Municipal Affairs assigned one change agent to each municipality to instil a culture of knowledge sharing and encourage technology use. They attempted to achieve this by conducting awareness sessions, awarding employees with certificates for their usage, inviting guest speakers and conducting live demos. The change agents described this process as challenging, due to the embedded culture, hierarchical system of the municipality and difficulty accessing managers and getting them on board. Participant MC2 mentioned:

*'If the leadership isn't on board, if they aren't communicating the importance of this to employees then they lose interest. So that is why we really wanted to get like the Chairman to come to these sessions. We wanted the Executive Directors to come to the awareness sessions. We wanted them to send emails to their employees to share documents with them and say look at this, this is great read that. So it was really hard to get them to do that.'*

The Department of Municipal Affairs knowledge management office that is monitoring the Musharaka initiative across all municipalities applauded the change agents' efforts and recognised that there is a positive leap in understanding and culture. They felt employees started to be more aware for in the beginning they did not know what does knowledge management or social communities mean and if they did know what social networking means they couldn't link it to their work. However, the knowledge management office observed that now the employees, after the awareness, the training and demonstrating to them what the value is of using the social networking platform they started to feel 'we can use it as a social networking with friends and we can use it in work related issues and we can have fun working'.

Employees described the organisational change management process as effective but they feel it should have been continuous; it should not have stopped once the consultants left and given the culture of the municipality in which employees are influenced by managers thinking, managers should have been involved more in this process. Research participants identified that the organisational culture went a long way from what it used to be but demanded more to be done including top managers' support, more awareness sessions and streamlining activities to be done through Musharaka. In addition, the research participants called for strategic, cross-departmental collaboration, DMAKC5 commented:

*...you can do it in a holistic way... from an IT perspective you can make it integrated, from a HR perspective you make sure that there's a monitoring from HR to track that these are active users. From a Strategic Planning point of view we make sure that discussions are there about projects and project updates. So if everyone is contributing and feeding in to that system then you end up using it daily.*

Nonetheless, employees are optimistic that with the necessary efforts to achieve the above, the culture will embrace these tools as employees will see the benefit of social networking tools in eliminating the distance and cost of commuting and communicating. This is an area where there is a gap in the literature that needs to be filled in terms of the organisational culture and environment for the optimum adoption of social networking tools for knowledge management. This will be elaborated on in the 'Future Research' section of the thesis.

## **Conclusion**

At this point, the findings in terms of the experiences of the research participants using social networking tools for knowledge management and the factors that influence their decision to use these tools have been discussed. Key emerging themes that were not originally in the initial template were added, presented and

explored. A summary table of the existing literature compared to the main findings is presented in table 16.

Research Question	Theoretical View/Expectations	Findings
<p><b>Can social networking tools enhance the knowledge management process? How?</b></p>	<p>Employees believe that social networking tools can enhance the knowledge management process by providing a collective platform for problem solving and sharing.</p> <p>Employees believe that social networking tools can enhance the knowledge management process by eliminating organisational resource wastage and by avoiding reinventing the wheel.</p> <p>Employees believe that social networking tools can enhance the knowledge management process by aggregating the information in an efficient, easy to retrieve and share manner.</p> <p>Employees believe that social networking tools can enhance the knowledge management process by introducing a global list of contact details and easing the process of locating expertise.</p> <p>Source: Van Zyl2009; Sinclair, 2007; McAfee, 2006; Schneckenberg, 2009; Martin et. al , 2009; Paroutis and Al</p>	<p>Abu-Dhabi Municipalities employees believe that social networking tools can enhance the knowledge management process by providing a platform for problem solving and sharing. If an employee is facing a problem/issue, they can post the problem and have a healthy discussion with counterparts across different municipalities.</p> <p>Abu-Dhabi Municipalities employees believe that social networking tools can enhance the knowledge management process by eliminating organisational resource wastage and avoiding re-inventing the wheel. Employees share project information, templates and lessons learnt for other employees to use and benefit from. In addition to using social networking tools for induction programs.</p> <p>Abu-Dhabi Municipalities employees believe that social networking tools can enhance the knowledge management process by allowing the aggregation of information in an easy to retrieve and share manner. Employees are confident they can find the information they are searching for using the social networking platforms but need to get into the habit of tagging information.</p> <p>Abu-Dhabi Municipalities employees believe that social networking tools can enhance the knowledge management process by facilitating the process of locating and contacting expertise across municipalities. Employees need to have their profiles updated.</p>

	Saleh, 2009; Dzamic 2009; Lavenda 2008; Middleton 2008	
<b>Why do knowledge workers decide (or not) to use social networking tools for knowledge management? What factors influence their decisions?</b>	Employees decide to use social networking tools for knowledge management due to their interactive, intuitive and user-friendly nature.	Abu-Dhabi Municipalities employees indicated that social networking tools are easy to learn but they are more appealing to the younger generation and IT graduates.
	Employees decide not to use social networking tools due to their busy working schedule or use it but in an unproductive manner.	<p>Abu-Dhabi Municipalities employees use the working schedule as an excuse not to use the social networking for knowledge management. More awareness workshops need to be in place and the tools need to be streamlined with employees day-to-day jobs.</p> <p>There are no concerns of employees using social networking tools in an unproductive manner.</p>
	Employees decide not to use social networking tools due to fear of validity of the user generated data.	This did not prevail to be a major concern. There is a certain degree of accountability and transparency in the system since the information produced fall under the name of the person, hence, the employee will ensure it is valid. Also, there seems to be a process to ensure validity but it needs to be formalised.
	<p>Employees decide not to use social networking tools due to security fears, trust and privacy issues.</p> <p>Source: Van Zyl 2009; Dzamic 2009; Lavenda 2008; Middleton 2008</p>	There is no major concern in terms of security since the framework is only accessible internally and there is a certain level of confidence on the security of the system but there is a need for a set of policies and procedures to govern the usage.
		<p>Other factors prevailed as major contributing factors including:</p> <p>Managerial Support</p> <p>Incentives and Rewards</p> <p>Organisational Culture</p> <p>These will be discussed further in the discussions chapter.</p>

Table 16: Summary of Expectations and Findings

Research studies on social networking tools for knowledge management are limited and thus far most of them are conceptual or view point papers (Van Zyl, 2009). Empirical studies providing insights and results on the use of social networking tools for knowledge management purposes are rare, there are a few preliminary studies which present some early indication of the current status (Bibikas, et al., 2009). Therefore, the expected findings from this case study were mainly driven by theory from conceptual studies and the results of the pilot study conducted from this case study.

In relation to the first research objective, on how could social networking tools facilitate the knowledge management process, the findings were in line with theoretical expectations and the initial findings from the pilot case study, however, in some ways more than the other. For instance, there was a strong consensus amongst the municipalities that social networking tools can enhance the knowledge management process by providing a collaborative platform for problem solving and sharing and that using social networking tools minimised the re-invention of the wheels. Nonetheless, while the employees at the municipalities identified that using social networking tools can enhance the knowledge management process by aggregating the information in an efficient, easy to retrieve manner and by introducing a global list of contact details and easing the process of locating expertise, the employees mentioned that the burden was on them to update their profiles and tag the information they are posting and etc. Moreover, that using these tools for knowledge management required an organisational culture transformation as it requires a change of habits and a new of doing organisational tasks.

In regards to the second research objective, on why do employees decide to use (or not) social networking tools for knowledge management, the findings did not necessarily correspond to what was expected and other major factors prevailed as a result of the pilot and actual case study. For instance, while it was expected that issues of validity of the content, security, privacy and trust would prohibit the usage of social networking tools for knowledge management, employees did not identify them as significant issues. On the other hand, employees mentioned factors such as managerial support, incentives and rewards and organisational culture as factors that influence their decision on whether to use these tools for knowledge management (or not).

In return, this case study provides insights for theory development and provided empirical data explanation from a single, government context that can be tested in further studies. It serves as a starting point for further research in the area within the same context (government organisations) or across different contexts (business and industries) to compare and contrast.

In the next chapter 'Discussions Chapter', the table and these findings will be elaborated on, the key themes will be explored further and the links between the themes will be examined. The findings will be compared with existing literature and the implications on research and practice will be covered.

## **Chapter 7 – Discussion and Conclusions**

### **1. Introduction**

This chapter analyses the study's major findings, explains the meaning and importance of the findings and compares and contrasts the findings to similar studies. In addition, alternative explanations of the findings are identified and discussed. Finally, the study's contributions to theory and the implications for practice are acknowledged, in addition to the research limitations and future areas for research.

This study aims to examine the nature of social networking tools for knowledge management when introduced to an organisational context and in return, examine if these tools belong to an objectivist or practice-based perspective to knowledge management systems implementation (Hislop, 2005). Furthermore, the potential of social networking tools in enabling the sharing of explicit and individual's tacit knowledge is explored. Moreover, this study sheds light on the dynamics that social networking tools presented when applied to the municipality's case study. In order to do so, the experiences of employees in using social networking tools for knowledge management were examined and the decision factors that influence the usage of these tools were outlined. The challenges the municipalities faced during the implementation were examined. The results will be discussed and compared to existing literature in attempt to build a better understanding of the subject matter.

### **2. Integrating the Objectivist and Practice-based perspectives to the Management and Sharing of Knowledge**

#### **2.1 Overview**

As per the literature review in Chapter 2, there are two prominent views in the management and sharing of knowledge: the objectivist perspective; that deals with

the codification and economics of knowledge, and the practice-based perspective that addresses learning and communities of practice (Hislop, 2005). Adopting either perspective has shown to present their own set of challenges in the management and sharing of knowledge (Hahn and Wang, 2009; Goodall and Roberts, 2003; Walsham, 2001). While these two views are radically different and often have been used independently of each other, there are significant benefits that can be sought from combining aspects of both views. For instance, the use of interactive knowledge management technologies can support practice-based perspective features by providing a collaborative platform that enables browsing and sharing of different interpretations, taking for granted values and assumptions. At the same time, these interactive tools allow for the capture of knowledge for the purpose of codifying and providing a fixed meaning of the knowledge.

As the case study used in this research has demonstrated, the use of particular interactive knowledge management technologies encompassed both, the objectivist and practice-based perspectives. On one hand, the municipalities systematically used the social networking platform to connect employees from different municipalities for the purpose of finding potential solutions for problems encountered, hence demonstrating a practice-based approach. On the other hand, the municipalities used the suggested solutions with the highest rating to develop a library of best practices, hence taking an objectivist perspective by the codification of knowledge. This will be discussed and elaborated on in the sections below.

## **2.2 Social Networking Tools and the Objectivist and Practice-based Perspectives of Managing and Sharing Knowledge at the Municipalities'**

From the municipalities' case study it was observed that social networking tools facilitated both an objectivist and practice-based perspectives to the management and sharing of knowledge. In some way, the tools lend themselves to the practice-



based perspective since explicit knowledge is not privileged over tacit knowledge as it is the case in the objectivist perspective (Grant, 2002; McAdam and McCreedy, 2000). This is evident from the knowledge sharing model that underpins these tools at the municipalities; it does not focus exclusively on explicit knowledge. The focus of the social networking tools at the municipalities was to allow two or more people to actively infer and construct meaning.

A conduit model of knowledge-sharing (Hislop, 2005) in which explicit, codified knowledge is shared by an isolated sender to a separate receiver and the receiver takes this knowledge and is able to understand it without any other form of interaction with the sender is not the primary model that the social networking tools operate at (Szulanski, 2003). There is an understanding that knowledge sharing requires individuals to develop an appreciation of some of the tacit assumptions and values on which the knowledge of others is based, i.e. the process of perspective making and taking (Boland and Tenkasi, 1995). For instance, Knowledge champion DMAKC7, commented: *'using the social networking platforms such as blogs and discussions forums enabled me to find solutions for existing problems, discuss new ideas or ways of doing things.'*

This way the employees at the municipalities demonstrated that they were engaged in a process of acquiring knowledge, making sense of the knowledge and sharing it, in return, a process of continuous knowledge exchange and learning (Szulanski, 2003). They were able to share different interpretations and taken for granted values and assumptions which are attributes of the practice-based perspective (Empson, 2001; Suchman, 2003; Walsham, 2001).

However, while the focus of the social networking tools was not primarily on converting tacit knowledge to explicit knowledge, as the objectivist view implies, there is a general assumption that the tools enabled some aspects of tacit knowledge to be partially converted into an explicit form (Nonaka et al., 1995). For instance at the municipalities, using the tools the employees documented the lessons learnt after every project completed, in an attempt to build knowledge that could be re-visited by peers and colleagues for future reference. Another example is the induction of new joiners, DMAKMO1 mentions: *'When the new joiners will come to the entity or any employee for example joined ADM or WRM or even DMA they don't need to start from scratch they have everything documented, published and they can see it. So at any time, any point they can refer to it as they have it published in Musharaka with a classified date publisher, author and everything.* In this way, the tools enabled an objectivist view of managing and sharing knowledge.

Moreover, the social networking tools at the municipalities exemplified an objectivist perspective by suggesting that knowledge can be collected in a central repository (the Musharaka Framework). For instance, employees at the municipalities used the 'tag' option of the social networking tools to label their posts and to facilitate the process of search and access for another employee who logs into the Musharaka framework for more information regarding a specific subject matter. Nonetheless, while knowledge was embodied under the Musharaka framework, the employees had a variety of social networking tools and the decision on which one to use depended on their need and preference. In addition, as it can be seen from the municipalities case study that another objective of having a collective platform was to connect people from similar fields or interests into communities to enable the social interaction required for the practice-based perspective of managing and sharing

knowledge. This consequently reflects the role the managers' play, in which the emphasis is not for middle and senior managers to fully understand knowledge of those who work them as the objectivist perspective suggests (Goodall and Roberts, 2003) but on facilitating the process of social interaction necessary for the practice-based perspective (Hislop, 2005). As Tsoukas (1996, p.22) puts it 'the key to achieving coordinated action does not so much depend on those 'higher up' collecting more and more knowledge, as on those 'lower down' finding more and more ways to get connected and interrelating the knowledge each one has'. For instance, at the municipalities, the role of managers was not to say 'tag that! Make a link! Now blog about what you just did' (McAfee, 2006, p.26) instead employees identified that the managers role was to encourage that type of social interaction. This also highlights another aspect of the practice-based perspective, in which it is argued that knowledge sharing often occurs in bottom-up organisational structures as opposed to top-down (Malone, 2004). In return, coinciding with the findings from the municipalities case study that are discussed at the 'organisational structure' section of the previous chapter, adjustments needed to be made at the municipalities structure to encourage participation and knowledge sharing in the social networking platform. The role of managers and organisational structure are further elaborated on later as part of this chapter at the 'Critical Factors for the Implementation of Social Networking Tools for Knowledge Management' section.

Furthermore, the objectivist perspective identifies that technology plays a key role in the management and sharing of knowledge (Hislop, 2005; Ruggles, 1998). By employing social networking tools for knowledge management, the municipalities is adopting a somewhat objectivist approach. However, this approach combines the practice-based perspective since the use of social networking tools is in line with the

role that the practice-based perspective writers identify for technologies to support knowledge sharing and management (Walsham, 2001). From this perspective technology has a role in facilitating and supporting social relationships, and communication processes which underpin knowledge processes (Walsham, 2001). The municipalities' case study confirmed the SLATES features of the social networking tools (McAfee, 2006) described in chapter 3 of the literature review and demonstrated how these tools are people-centric and support social networking (Van Zyl, 2009), within this context. This is one of the attributes of technologies that revolve around the practice-based perspective of supporting knowledge management processes (Hislop, 2005). In the municipalities, employees identified that using social networking tools they were able to build a digital expression for themselves, their relationships and links. Moreover, they identified that the tools helped them in discovering potential ties and the transformation of these ties into weak or strong ties by providing "introduction services" (Van Zyl, 2009, p. 7) and enabling employees to exhibit their expertise, experience and knowledge in a searchable format. In addition to allowing social feedback in which contributions by members are rated by other users of the system. Knowledge Champion AAMKC3 elaborates:

*I have my own profile at the Musharaka framework, which I constantly update and reflect on to, represent my latest projects and activities. This profile is accessible to all the employees at the municipalities and allows the ones who are doing similar tasks or have interest on the projects and activities I am working on to get in touch with me so we could exchange learning experiences and share knowledge.*

Thus far, most contributions focussed on one or another perspective of knowledge sharing and management (Hislop, 2005). Part of the reason may be that consensus

was not reached between writers from both perspectives, earlier tools may have not allowed it or the idea was not exploited (Jashapara, 2011). However, it can be argued that there is a lot to be gained from having a tool that combines both aspects of the objectivist perspective and practice-based perspective. With the advent of the interactive knowledge management technologies, social networking tools have emerged that allow: (1) connecting professionals across platforms and across distances, (2) standardizing professional practices, (3) avoiding mistakes, (4) leveraging best practices, (5) reducing time to talent, (6) building a reputation, (7) taking on stewardship for strategic capabilities (Dalkir, 2011). Moreover, organisations are beginning to accept these tools within work settings.

In this case study, I examined how an organisation as large and important as the municipalities has adopted these social networking tools for knowledge management and the benefits these tools brought to the municipalities was discussed in the findings chapter. On close examination of the tools, it was demonstrated that they integrated some elements from the objectivist perspective and practice-based perspective. For instance, the tools were used to present a glossary of terms that are relevant to the municipalities, this way adopting an objectivist perspective. Simultaneously, the tools enabled a formalised mentoring system to pair experience and inexperienced workers, this way demonstrating aspects of the practice-based perspective. The next section explores the link between the proposed integrated perspective and the theoretical framework of this study, the knowledge based-view of the firm, in an attempt to examine if there is a link and synthesise.

### **2.3 The Integrated Perspective to Knowledge Sharing and Management and the Knowledge-based view of the Firm**

In what precedes, how social networking tools encompass elements from both the objectivist and practice-based perspectives have been discussed and the benefits

this brought to the municipalities have been explored. It is important to reflect on the aforementioned, in light of the theoretical framework adopted as part of this research, the knowledge-based view of the firm (Grant, 2002; Spender, 1996). In order to do so, the fundamentals of the knowledge-based view of the firm are compared to the features provided by an integrated perspective approach to knowledge management at the municipalities.

The first fundamental element of the knowledge-based view of the firm is transferability (Grant, 2002). It has been established that knowledge is an important resource for organisations but its value is limited if it is not transferrable (Kogut and Zander, 1992). It is critical for organisations to find a way to share explicit and tacit knowledge (Dalkir, 2011). While explicit knowledge is easy to transfer, articulating tacit knowledge is slow and hard (Ambrosini and Bowman, 2001; Barney et al., 2001; Grant, 2002). Implementing technologies that are under an objectivist perspective for knowledge sharing and management may enable the sharing of much of the explicit knowledge through the codification strategy but given that tacit knowledge is hard to articulate, it is often difficult to capture and codify (Hislop, 2005). On the other hand, implementing technologies that are under the practice-based perspective may facilitate browsing of different interpretations; nonetheless, there are still debates with regards to how to best achieve this (Hislop, 2005). Using tools that facilitate an integrated perspective enabled the municipalities to facilitate the sharing of explicit and some aspects of the tacit knowledge amongst employees. For instance, social networking tools that were implemented at the municipalities enabled the transfer of much of the explicit knowledge and had an impact on the sharing of tacit knowledge. For example, explicit knowledge was shared by establishing a library of best-practices within the municipalities and the sharing of tacit knowledge was facilitated

by enabling location of expertise and problem solving mechanisms. This is elaborated on in the next section (Section 3).

The second point that provides the foundation for the knowledge-based view of the firm is the capacity of aggregation (Grant, 2002). To ease knowledge transfer difficulties, knowledge needs to have the ability to be stored and added to existing knowledge (Becerra-Fernandez et al., 2004; Alavi and Leidner, 2001). In other words, it needs to have the potential for aggregation. Having a common language enhances aggregation potential, as everyone understands the same language (Grant, 2002). It is argued that explicit knowledge can be shared efficiently through properly implemented information technology (Alavi and Liedner, 2001). An objectivist perspective to the implementation of information and communication technologies enables the aggregation of knowledge. As per the findings section revealed (3.3), using social networking tools at the municipalities enabled some aspects of the aggregation of information in an easy, efficient to retrieve and share manner. Research participant WRMKC2 provides an example:

*Using the tagging folksonomy I categorise my blog or wiki posts, this way if any employee across the municipalities is working on a similar task or area, they could search the tag and get the relevant information.*

On the other hand, a third fundamental aspect of the knowledge-based view identifies the need for specialisation in knowledge acquisition (Grant, 2002). Everyone has a limit to acquire, store, process knowledge internally and externally. To increase efficient use of knowledge different employees need to specialise in variety of knowledge areas (Alvesson, 2004). In return, corresponding to a more practice-based perspective to technologies for knowledge management in which

technologies facilitate the identification of experts in the field to find solutions to existing problems (Hislop, 2005). This relates to two of the aspects discussed in the findings sections, the capability of social networking tools in enabling the location of expertise (section 3.4) and the capability of social networking tools in providing a collaborative platform for problem-solving (section 3.1). Using social networking tools at the municipalities facilitated both the identification of expertise and a platform to exchange ideas and solutions for problems encountered. For instance participant AAKMC02 comments:

*The social networking tools that are implemented as part of Musharaka enabled me to conduct a search (for e.g. using tags), consult my peers and areas of expertise, review if someone had the same problem and how to solve it (for e.g. in open forums), in addition to share valuable information with others (for instance using blogs).*

The fourth fundamental element of the knowledge-based view of the firm addresses knowledge requirements of production (Grant, 2002). This entails that knowledge is the key input in production of a business and that production involves the transformation of inputs into outputs (Curado and Bontis, 2006). This can be achieved in two ways, either by focusing on application of existing knowledge (replication) or by generation of new knowledge (DeNisi et al., 2003). The former dictates a more objectivist-perspective to technologies for knowledge sharing while the latter suggests a more practice-based perspective of technologies for knowledge management. This is evident from the municipalities' case study as employees refers to best-practices forum before starting a new project, hence relying on already existing knowledge from past project. In addition, when conceptualising a new idea employees would refer to the directory of experts that is part of the social networking



tools as often the creation of a new product or services often requires access to specialised knowledge. See table 17.

<b>Knowledge-Based View Principle</b>	<b>Perspective (Objective/ Practice-Based)</b>	<b>How did an integrated perspective using social networking facilitate this process in the municipalities?</b>
<b>Transferability</b>	Objectivist	Transfer of explicit knowledge such as documents, templates, policies and procedures
	Practice-Based	Facilitating tacit knowledge sharing through identification of experts and a collaborative problem solving platform
<b>Capacity for Aggregation</b>	Objectivist	Ability to codify and store knowledge in a central repository
<b>Specialisation in Knowledge Acquisition</b>	Practice-Based	Experts within the municipalities were identified and access to them facilitated
<b>Knowledge requirements of production</b>	Objectivist	Applying existing knowledge
	Practice-Based	Generating new knowledge

Table 17: KBV, Perspective and how was it facilitated at the municipalities

It can therefore be observed that the principles of the knowledge-based view of the firm support an integrated perspective to the implementation of information and communication technologies for knowledge management. Whereas some principles of the knowledge-based view fall under the objectivist perspective, others fall under the practice-based perspective and some principles incorporate both the objectivist and practice-based perspectives. In return suggesting that to implement these principles aspects from both perspectives need to be combined.

In addition, an investigation into the mechanisms for the coordination of knowledge that the knowledge-based view of the firms recommends could provide direction towards the types of technologies that could support this view. Grant (2002) identified four mechanisms for the coordination of knowledge: rules and directions, sequencing, routines, group problem solving and decision-making. The first three mechanisms focus on efficiency through minimizing communication, in return geared towards an objectivist perspective to the management and sharing of knowledge. The forth mechanism in the contrary, demands more personal contact and communication, in return geared towards a practice-based perspective of knowledge management and sharing. See table 18.

<b>Knowledge-Based View Mechanism</b>	<b>Perspective (Objective/ Practice-Based)</b>	<b>How?</b>
<b>Rules and Directives</b>	Objectivist	Efficiency through minimizing communication
<b>Sequencing</b>	Objectivist	
<b>Routines</b>	Objectivist	
<b>Group Problem Solving</b>	Practice-Based	Establish more personal contact and communication

Table 18: KBV mechanism, Perspective and how was it facilitated

Based on the aforementioned, it can be observed that at the municipalities, the principles and mechanisms of the knowledge-based view incorporated elements from both the objectivist and practice-based perspectives. In return, this may suggest that for the municipality to sustain competitive advantage they need to adopt an integrated approach to the implementations of knowledge management initiatives. Particularly, the implementation of information and communication technologies for knowledge management should support an integrated approach, i.e. features of both the objectivist and practice-based perspectives.

An integrated perspective to knowledge transfer and integration is one that recognises that knowledge sharing involves a process of 'perspective-making' and 'perspective-taking' (Boland and Tenkasi, 1995), in return developing an understanding of tacit assumptions (Hislop, 2005). It enables knowledge-sharing through extensive amount of social interactions (Lam, 2000; Swan et al. 1999), facilitating the process of establishing trust (Kuo and Lee, 2011; Butler and Murphy, 2007; Jarvenpaa and Leidner, 1999; Pauleen et al., 2001). For instance, the social networking tools at the municipality that facilitated one-to-one conversation (e-mail), one-to-many (blogs) and many-to-many (wikis). An integrated approach facilitates the collection of relevant knowledge, best-practices, standards and allows organisation of these in a way that it is accessible and searchable (Szulanski, 2003; Nonaka et al. 2001, Nonaka and von Krogh, 2009). In the integrated perspective, technology plays a role but the users are the ones that dictate the usage, depending on the type of knowledge they need and the purpose they need it for. For instance the employees in the municipalities were able to access the central repository to learn from previous experiences and best-practices or identify an expert in the field to discuss a new idea with. Managers can no longer focus primarily on the coordination of knowledge but also the facilitation of social interaction, as the employees in the municipalities expressed the importance of (see section 4.6 of the findings chapter).

An integrated perspective to knowledge management has the potential to cut down on costs by enabling the transfer process of best practices (Alavi and Leidner, 2001). For instance, the lessons learnt blog that is applied as part of the municipalities. It may lead to effective decision-making by facilitating the process of advice gained from colleagues in other departments or branches (Grant, 2002). Employees from

the municipalities had access to expertise from different areas and were able to reach to them for consultation and advice. An integrated perspective may add into the profits gained through the sharing of expertise and products amongst departments/branches (Hansen and Nohria, 2004). Moreover, facilitating the process of combining ideas between employees may result in new innovations (Du Plessis, 2007). For instance employees at the municipality used blogs to discuss new ideas and ways of doing tasks. Finally, an integrated perspective to knowledge management may enhance the ability for collective action that involves dispersed departments/branches (Hansen and Nohria, 2004). As it was the case with the municipalities in which employees from different branches and across different departments were able to exchange information to decide on the course of action (see section 3.1 of the findings section).

To sum up, thus far how the implementation of social networking tools at the municipalities combined elements from both the objectivist and practice-based perspectives have been demonstrated. The benefits that can be sought from combining these perspectives have been explored. Moreover, a comparison between the features of an integrative perspective to the requirements of the knowledge-based view has been of the firm has been conducted. This process revealed an alignment between the two: the features of an integrated perspective and the principles of the knowledge-based view of the firm. Based on the aforementioned, an integrated perspective to the implementation of information and communication technologies for knowledge management has been recommended and developed. The next section discusses potential attributes that need to be present for information and communication technology tools to support the implementation of an integrated perspective. These could be used to assess the

adoption of information and communication technology tools for knowledge management. In addition, a set of guidelines that could inform future developments of information and communication technologies for an integrated perspective are developed.

#### **2.4 Information and Communication Technologies for an Integrated Perspective to Knowledge Management and Sharing**

The previous section established that an integrated perspective to knowledge management and sharing and the principles of the knowledge-based view of the firm requires the application of many types of knowledge (Grant, 2002; Kogut and Zander, 1992) and the facilitation of different types of knowledge management activities, tasks and processes. This section highlights the anticipated features that need to exist for information and communication technology tools to play a role in supporting the implementation of an integrated perspective. The capability of social networking tools in facilitating these processes in the municipalities will be examined, in an attempt to identify the current status and limitations. The following process will enable the development of potential design features for the next generation tools that are required to implement the integrated perspective, based on the principles of knowledge-based view of the firm.

Thus far, it has been established that an integrated perspective to knowledge management and sharing should on one hand, facilitate the capture of relevant knowledge (Nonaka and von Krogh, 2009), and enable the collection and organisation of knowledge (Becerra-Fernandez et al., 2004). On the other hand, an integrated perspective to knowledge management and sharing should facilitate the process of 'perspective making and taking' (Boland and Tenkasi, 1995) and provide opportunity for rich social interaction (Hislop, 2005). To a certain extent, social networking tools facilitated aspects of the above processes for the municipalities. For

instance, some aspects of knowledge were captured and stored within the Musharaka framework (see section 3.2 and 3.3 of the findings section). Employees would 'tag' their contributions to ease the process of knowledge classification, search and location. Moreover, the social networking tools provided platforms for problem solving, exchange of ideas, locating and identifying expertise in the field (see section 3.1 and 3.4 of the findings section).

Nonetheless, the municipalities' case study revealed that social networking tools exposed some limitations in design when applied. While the tools facilitated much of knowledge creation and sharing, it placed the burden on people to manage and organise the knowledge. The design of the tools is geared more towards knowledge sharing, placing less emphasis on the management of knowledge (Sinclair, 2007). Consultant MC1 commented: *'we spent a lot of time making sure we had the right taxonomy so that everything is easily searchable. And there was a lot of technology that went into that.'*

Also, the knowledge management office and consultants for the municipalities identified that it was hard to get employees into the habit of 'tagging' the knowledge they produce (see section 3.3 of the findings chapter), 'rating' the contributions of their colleagues and updating their 'profile' page in the directory (see section 3.4 of the findings chapter). Tags (McAfee, 2006) are features embedded in the social networking tools to allow user-oriented classification (see chapter 4). Rating enables the reader to provide social feedback ('like' or 'dislike') on the knowledge he/she accessed (see chapter 4). The profile page of the employees, allows the employees update their profiles regularly in terms of their specialisation, activities, accomplishments (see chapter 4). Nonetheless, the municipalities' case study revealed that while the social networking tools allow knowledge to be created and

shared, employees either felt they had less time or less willingness to implement structured roles for the management of content (see section 3 and 4 of the findings chapter). For instance the Mouchel consultant MC2 commented: *'the system is there ...but you know it needs personnel in the organisation to drive the use of that (tags, rating and profiling). A system is all well and good but you need actually people to buy into using these features.'*

If not addressed, the following limitation may have significant implications on the municipalities in the future. Whilst the processes of knowledge creation and sharing are important, a lack of management of the knowledge generated may result in 'information-overload' (Curado and Bontis, 2006). This information-overload will make it harder to find and access required knowledge. The knowledge contributed should be managed and organised, there needs to be some type of guideline as to what is important, what should or must be kept (Sinclair, 2007).

The second design issue refers to the aspect of facilitating social interaction. This is more of an area that needs to be built on, rather than a significant limitation for compared to previous technologies, social networking tools provided many opportunities for social interaction. For instance, social networking tools at the municipalities enabled the building of a digital expression of employee's professional relationships and links, the tools enabled the discovery of potential ties and converting these ties into weak or strong ties (Szulanski, 2003). Moreover, the social networking tools at the municipalities supported the process of one-to-one communication, one-to-many and many-to-many. In addition, the social networking tools at the municipalities allowed for social feedback by allowing other employees to rate the contributions of their colleagues.

Nonetheless, providing a platform for rich, technology-mediated, social interaction is challenging (Hislop, 2005) mainly because the loss of social cues, tone of voice, body language and etc. (Goodall and Roberts, 2003). The municipalities' employees identified that they believed that social networking tools facilitated sufficient social interaction between them, however, some identified that it complimented face-to-face interaction (see section 3.1 of the findings chapter). For instance, participant DMAKC06 indicated *'I wouldn't go as far as saying that these social networking tools such as blogs and wikis replace face-to-face meetings and conversations as I feel some matters that require innovation and creativity require a richer platform but they do complement them'*. Furthermore, face-to-face interaction is also an important element to extend the level of trust developed and maintained (Maznevski and Chudoba, 1999; Nandhakumar, 1999). While the municipalities did not identify trust as an issue at this stage, it might prevail in the future as the number of people who join the social networking communities increase. Hence, by combining face-to-face interaction with social networking tools, the richness of interaction is likely to be enhanced and trust is more likely to be established (Maznevski and Chudoba, 1999).

Designing information and communication technology tools for an integrated perspective requires building on the existing capabilities of social networking tools and addressing the above mentioned limitations/issues. For information and communication technology tools to support an integrated perspective, they need to exhibit a new level of depth, one that results in more intelligent, responsiveness and relevant interactions. Upon comparing the existing literature to the capabilities that social networking tools provided to the municipalities, and the requirements identified for an integrated perspective, the following set of guidelines should assist in enabling the conceptualisation and design of the next generation tools.



The knowledge management new web generation tools should build on the capabilities of the existing tools in supporting social interactions and social networking, different modes of communication, and allowing social feedback. However, they need to be customised more towards providing the user with a more relevant and richer experience. It has been established above that one of the limitations of social networking tools was that it placed the burden on the employees [at the municipalities](#) to manage the knowledge, and employees were less keen about following a structured approach for managing the content (Sinclair, 2007). The next generation of knowledge management tools, should auto-recognise topics and concepts, extract information and meaning and categorise (Borland, 2007). The tools should directly search topics, concepts, associates that span a vast number of sources. They should understand the content and filter the content that is of interest to the employee (Hendler, 2009). Moreover, rather than having search engines geared towards keywords, the search engines should gear more towards the employee (Morris, 2011).

This way, as opposed to collecting or storing everything, which results in information-overload, each employee has a unique virtual profile based on his or her browsing history (Borland, 2007). In this case, the browsing experience to each employee at the municipality is customised. Two employees searching for the same term may get different resulted based on their individual profile and browsing history. This profile that is based on the employee browsing history at the organisation, dictates who the employee is, the role he/she play in the organisation, teams he/she works with and the, projects, services and activities he/she are involved in (Morris, 2011). As opposed to social networking tools, the profile should be updated automatically instead of having the employees to have to update it.

Another area that the knowledge management new web generation tools should build on is providing richer user experience. While technology-mediated tools cannot replace face-to-face interaction, future developments of knowledge management technologies should be geared more towards converging physical and virtual reality. The tools need to resemble a real-life, human-to-human encounter. The technologies can centre on higher image quality, 3D simulations, and augmented reality. The social networking tools participatory element can be encapsulated in 3D space, hence exemplifying a richer experience (Borland, 2007).

Hence, for information and communication technology tools to support the integrated perspective to knowledge management, they need to enable an environment of rich social interaction, one that facilitates interaction between different employees, allows the identification of different expertise and facilitate a virtual environment that is closer to reality for the interaction to occur. This should provide more opportunity to discuss creative solutions for problems, discuss new ideas and innovations. In addition, for information and communication technology tools to support the integrated perspective to knowledge management, they need enable a smarter system for the aggregation of knowledge. A system that allows for the aggregation of knowledge in an efficient, easy to retrieve manner, where the burden is not on the employee to manage the knowledge, but on the tool to understand and provide context to the content based on the employee's browsing history and activity.

This section proposed an integrated perspective to the management and sharing of knowledge using information and communication technology tools that facilitate the combination of both the objectivist perspective and the practice-based perspective. The principles of an integrated perspective to the management and sharing of knowledge are aligned with the principals of the knowledge-based view of the firm. In

return, this integrated perspective should facilitate the transfer and integration of knowledge. How social networking tools enabled this process at the municipalities was demonstrated and the current design limitations of the tools exhibited at the municipalities have been identified. This process enabled the recommendation of a set of guidelines for the development of future tools to support an integrated perspective to knowledge management and sharing.

Given the importance of transferring knowledge in the knowledge-based view of the firm, the next section builds on what was mentioned in section 2.3, with regards to the potential of social networking tools in facilitating knowledge sharing. Particularly how the tools enabled some aspect of tacit knowledge sharing that is valuable, yet often too difficult and hard to articulate.

### **3. Social Networking Tools and the Process of Knowledge Sharing**

Interactive knowledge management technologies rely on the human side aspects to enhance knowledge management within organisations (Paroutis and Saleh, 2009). These technologies that have manifested themselves in the form of social networking tools are increasingly being used by organisations to create, store, and share knowledge within a natural setting (Jashapara, 2011). While the approach is able to facilitate the sharing of much of the explicit knowledge communicated (see sections 3.2 and 3.3 of the findings chapter), it is shown that it is making some impact in sharing tacit knowledge as well (see sections 3.1,3.4 and 3.5 of the findings chapter). In this research, the municipalities' case study was used to demonstrate how these tools can be effective in capturing a variety of explicit and tacit knowledge within this case study. While this was touched upon in the findings section, it will be further elaborated on below.

The extent of use of the Musharaka framework for knowledge sharing activities involving document sharing at the municipalities was high. Employees were using the social networking tools to publish documents, access documents and exchange documents. This indicates that within the municipalities' case study, social networking tools enabled the sharing of explicit knowledge. Explicit knowledge takes the form of formal knowledge that can be codified and captured as documents (Alavi, 2001; Ali et. al, 2012; Von Hippel, 1994). Specific examples of the exchange of explicit knowledge at the municipalities, utilising the social networking tools, was provided in the above section and include: establishing a glossary of work related terminology, creating a best practices library, unified induction program for new joiners and posting documents with the set of policies and procedures. In such manner, the social networking tools at the municipalities facilitated explicit knowledge sharing. Ample has been written on the exchange of explicit knowledge (Alavi and Leidner, 2001; Von Hippel, 1994; Kulkarni, 2007; Savolainen, 2007; O'Dell and Grayson, 1998) and many previous information and communication technologies facilitated the transfer of explicit knowledge (e.g. email, Enterprise Resource Planning (ERP)). For this reason, of particular interest is the potential of the social networking tools in facilitating some aspect of tacit knowledge sharing that may be valuable to organisations that want to establish sustainable competitive advantage (Taylor, 2007).

The knowledge-based view of the firm recognises the difficulty of sharing tacit knowledge that may be primary to achieving competitive advantage (Grant, 2002). As per the literature review in chapter 2 and 3, tacit knowledge by nature is difficult to articulate (Nonaka and Von Krogh, 2009), it is 'personal' and deeply embedded in people, 'practical' and procedural, finally it is 'context specific' (Ambrosini and

Bowman, 2001, p.813). Given its nature, the resource-based view argues that tacit knowledge provides competitive advantage for it is unique, not easily transferred or imitated and is non-replaceable (Ambrosini and Bowman, 2001; Barney et al., 2001). Hence, organisations have been trying to find means to articulate and transfer its tacit knowledge to achieve a competitive position (Dalkir, 2011). In this section, based on the municipalities' case study, the potential of social networking tools to facilitate this will be explored.

It can be observed that the features that govern social networking tools and were demonstrated at the municipalities are in line with the prerequisites for the development of tacit knowledge in organisations, for instance it is argued that tacit knowledge occurs in organisations with an open culture (Madeuf, 1984). Open Culture is a "concept according to which knowledge should be spread freely and its growth should come from developing, altering or enriching already existing works on the basis of sharing and collaboration, without being restricted by rules ...all employees should have equal access to information" (CIAC 2012, p.1). From the municipalities' case study, it can be observed that social networking tools exist in a single platform that was accessible by all employees across municipalities to share and exchange knowledge and ideas, for instance the employees discussed possible solutions for a problem. Employees were able to discuss their ideas/solutions with limited restrictions. For instance employee WRMKM04 mentions:

*'being stationed at the Western Region municipality (in a rural territory in the UAE), I often felt out of touch and reach. I feel good about using the social networking tools such as blogs because I feel that I am keeping in touch with my peers. I know what they are doing, what projects and tasks they are involved in and I can identify a potential for collaboration between us'*

Moreover, to foster tacit knowledge in organisations, interaction needs to be encouraged as opposed to isolation (Stover, 2004) and it is evident from the literature review (McAfee, 2006; Paroutis and Saleh, 2009) and case study that the focus of social networking tools is to unlock barriers to participation and encourage collaboration and interaction. The social networking tools have the capability of fostering interaction. For instance, employees at the municipality used blogs to present and communicate their ideas and contributed to discussions in wikis and were able to exchange ideas across the municipalities despite the fact that the municipalities were in different emirates. In addition, the social networking tools allow social feedback in which other users' rate contributions by members and this feature can also enrich interaction (Van Zyl, 2009). Research participant AAKMC05 from the strategic management department commented on the collaborative workplace platform of the social networking tools:

*'The tool that I particularly like using is the collaborative workplace, this tool enables us at the strategic planning division to work on a particular document as part of a team. Each of us can modify and edit this document from our remote areas'*

Furthermore, it is argued that personal contacts with external or internal organisations is key to tap into the tacit knowledge of organisations (Alwis and Hartmann, 2008) and evidently from the case study of the municipalities, social networking tools enabled them to locate expertise across all municipalities and one of their future plans is to connect the system with other government organisational and academic entities. Through such a platform contacts are found easily. Also given the 'SLATES' (McAfee, 2006) option of the tools and their capacity to support social networking is amongst the tool's benefits in which a user can build a digital expression of people's personal relations and links which assists in the discovery of

potential ties and the conversion of these ties into weak or strong ties (Van Zyl, 2009). Reflecting on the aforementioned discussion and the building on the findings section, table 19 summarizes the prerequisites for the evolution of tacit knowledge in organisations and how social networking tools enabled it at the Municipalities.

**Table 19: Prerequisites for the evolution of tacit knowledge in organisations and how social networking tools enabled it at the Municipalities**

<b>Prerequisites for the evolution of tacit knowledge</b>	<b>Features of Social Networking tools that allowed this at the Municipalities</b>
<b>Organisations with an open culture</b>	From the municipalities' case study, it can be observed that social networking tools exist in a single platform that was accessible by all employees across municipalities to share and exchange knowledge and ideas, for instance the employees discussed possible solutions for a problem. Employees were able to discuss their ideas/solutions with limited restrictions.
<b>Organisations that encourage interaction as opposed to isolation</b>	Employees at the municipalities identified that social networking tools enabled them to interact on one-to-one basis, one-to-many (blogs) and many-to-many (wikis).
<b>Organisation that allow personal contacts with external or internal organisations</b>	Employees at the municipality identified that using social networking tools enabled they were able to locate expertise across different municipalities and contact them with the issue at hand. The municipalities identified that they wish to expand on this capability by opening access to expertise outside the municipality such as academics and other government employees.

Baumard (1999) identified common characteristics that distinguish successful organisations in capturing tacit knowledge: firstly, resolving uncertainty and vagueness through communities of practice (Dalkir, 2011; Wenger et. al, 2002). Using social networking tools employees at the municipality had a platform to work in

groups and networks, exchanging tips and generating ideas. Moreover, using the social networking platforms facilitated discussions between groups of professionals who face similar problems and collectively try to solve these problems in order to improve their profession and return themselves. All these are characteristics of communities of practice that social networking tools appeared to facilitate. *Participant DMAKC07 identified 'whenever I am in doubt or need a clarification in an issue, I go back to the Musharaka framework, if I had a question, I would start by searching using keywords and tags and if I did not find what I am looking for I would post a question either in the forum or a blog..'* In return in the basis of this case study and on the literature review in chapter 4, it can be observed that social networking tools enabled the resolution of uncertain or ambiguous issues.

The second factor that Baumard (1999) mentioned is the capability of organisations to establish informal matrices of relationships among employees. Given that the social networking tools do not impose a formal business structure as opposed to previous technologies (Sinclair, 2007) and since the success of these tools depends on the openness of organisational structure and freedom give to employees (Schneckenberg, 2009) it could be argued that they have the potential to establish informal matrices of relationships among employees. Employees at the municipality identified that through using the social networking tools they were able to communicate with their counterparts in a less formal manner, which eased the communication process. For instance, WRMKC02 described the process as:

*'using the social networking tools such as blogs that are implemented as part of Musharaka enabled us to organize ourselves into a network based on our preferences which allowed for conversations and collaboration to pre-exist.'*

Finally, Baumard (1999) highlighted the reliance of organisations on collective knowledge is another key indicator to the success of organisation in capturing tacit



knowledge. It can be observed from the municipality case study that social networking tools provide a platform for collective intelligence by enabling participation, interaction and collaboration of all employees, across different regions, in a common platform. In return, facilitating the process of building collective knowledge, for instance employees access this platform and contribute to the existing discussions or start a new thread of discussion on a particular idea or problem. The municipality then intends to use this collective knowledge to prosper and grow. Table 20 summarises all the characteristics discussed above and how social networking tools at the municipalities enabled the capture of tacit knowledge.

**Table 20: Characteristics that distinguish successful organisations in capturing tacit knowledge**

<b>Characteristics that distinguish successful organisations in capturing tacit knowledge</b>	<b>How social networking tools at the municipalities enabled the capture of tacit knowledge?</b>
<b>Resolving uncertainty and vagueness through communities of practice</b>	Employees identified that the common social networking platforms at the municipalities helped them identify and clarify any unclear or unresolved issues by enabling the communication across employees from different locations and departments, as well as expertise in the matter. Hence, this enabled the resolution of uncertain or ambiguous issues.
<b>Establishing informal matrices of relationships among employees</b>	Employees identified that since the social networking tools implemented resemble the tools they use in their day-to-day lives (Facebook, twitter and etc.), they provided an informal mean of communicating with one another.
<b>Relying on collective knowledge</b>	Employees identified that the social networking platforms allow the communication of various issues in one platform that could be revisited to find solutions for potential problems or examine any issues encountered.

To sum up, the potential of social networking tools in business context was examined using the municipalities' case study, within this context; the potential of social networking tools resides in their capacity to enable collaboration and interaction between workgroups in different locations, within the organisation or

between different organisations. In the case of the municipalities, social networking tools provided the platform for highly specialised team of experts to create and nurture tacit and explicit knowledge within common work projects. Moreover, the municipalities were able to utilise the unique SLATES model (search, link, author, tag, extension and signal) that was described by McAfee (2006) for organisational learning. On the basis on this case study, the nature of these social networking tools allowed shared interaction of employees in open collaboration contexts enabled them to gain and expand on their tacit knowledge and internal core competencies that positions them to improve on their overall performance.

Nonetheless, having mentioned the above and despite the ease-of-use and the intuitiveness of these tools, their pervasive nature (Schneckenberg, 2009) and their resemblance to the use of technology in their daily lives (Sinclair 2007), it can be observed from this case study that when introduced to an organisational context, they come with their unique set of dynamics and challenges. The spontaneous success of the different social networking tools in the internet for instance, led many organisations to believe that 'if we build it, they will come' i.e. if they build the social networking platforms, employees will participate and exchange knowledge (McAfee, 2006, p.26; Paroutis and Saleh, 2009). The findings of this case study indicate that perhaps social networking tools are not as pervasive when introduced in organisations, in the contrary the implementation of these tools might be a gradual process and depends on various factors which could serve as a start point for further research. The design limitations that the social networking tools presented at the municipalities were discussed in section 2.4 of this chapter. The implementation challenges that the municipalities faced will be discussed in the section below.

#### **4. Initial Implementation Stage and Associated Challenges**

Organisational and knowledge management maturity models have been used in research and practice to assess the present level of knowledge activities and sharing within an organisation. It is argued that placing a given organisation into a maturity model, contributes to a better understanding and organisational change is significantly facilitated as it becomes easier to visualize any prominent issues and what is required to reach to the next level (Dalkir, 2011).

In the findings section, the current state of the municipalities was diagnosed in order to better anticipate how both the organisation as a whole and individual knowledge workers within that municipalities reacted to the knowledge management initiative (the Musharaka framework). One of the main findings described in the previous chapter, is that the Musharaka framework was at the initial stage of implementation (Dalkir, 2011). This has become apparent from the interviews conducted, and a comparison between the maturity models and the Musharaka framework confirmed it. It has been identified as being at the 'initial', default stage, the first stage of maturity, since the processes were still ad-hoc, chaotic and rarely defined and there was a sense of lack of understanding from the employees' perspective. In addition to these two attributes that provided insight on the current stage of implementation of the Musharaka framework, another major finding is the three tensions that the municipality struggled with at this early stage of implementation of the Musharaka framework. These became recurrent themes during the interviews and were described in the findings section: lack of managerial support, rewards and incentives and inadequate organisational structure. Although the findings revealed that social networking tools function in a bottom-up structure, there is still a role that managers need to play in the adoption of these tools in showing presence and incentivising

usage. These factors will be discussed further in 'Critical Factors for the Implementation of Social Networking Tools for Knowledge Management' section.

The fact that security, trust and validity issues were not raised as critical points was surprising. This may be because the organisation is still at the early process of implementation and did not reach the level of maturity to encounter such issues or since the platform now is only accessible to employees internally. Another more general reason could be because the culture in the municipalities and in the UAE in general is safe and trusting in nature, not much incidents of security breach or fraud and hacking incidents occur (Abu-Dhabi Cyber Crime and Security Report, 2010). Nonetheless, the literature in knowledge management highlighted the importance of trust for knowledge transfer (Bukowitz and Williams, 1999; Roberts, 2000) and the security and validity issues have been highlight in the literature of social networking tools for knowledge management (Dzamic, 2009; Lavenda, 2008; Middleton, 2008).

In an effort to synthesise, all the tensions that have arisen from the municipalities' case study will be considered and grouped under one of the following categories: strategy, organisational and technical factors (Figure 17). Butler et al. (2007) identifies these three factors as critical to be examined when implementing a knowledge management. The existing literature (Butler et. al, 2007; Massey et al., 2002; Zack, 1999) highlights the importance of strategy based factors such as alignment of goals and objectives, top management's commitment, in driving the implementation of knowledge management initiatives. The organisational factors stem from the argument that organisational and behavioural change management is important for the success of any knowledge management implementations (Moffett et al., 2003; Alavi and Leidner, 2001). Finally, the technical based factors that

identify that technology when used with an appropriate knowledge management strategy could be an enabler of organisational success (Chua, 2004).

Grouping the tensions that the municipality passed through in each of these categories will help in a better comprehension and articulation of the nature of these tensions (figure 17). The security, validity and trust issues were included despite not being mentioned as significant compared to other issues from the interviews, however since they were lightly touched upon in the case study and mentioned in the literature, it was deemed best to include them.

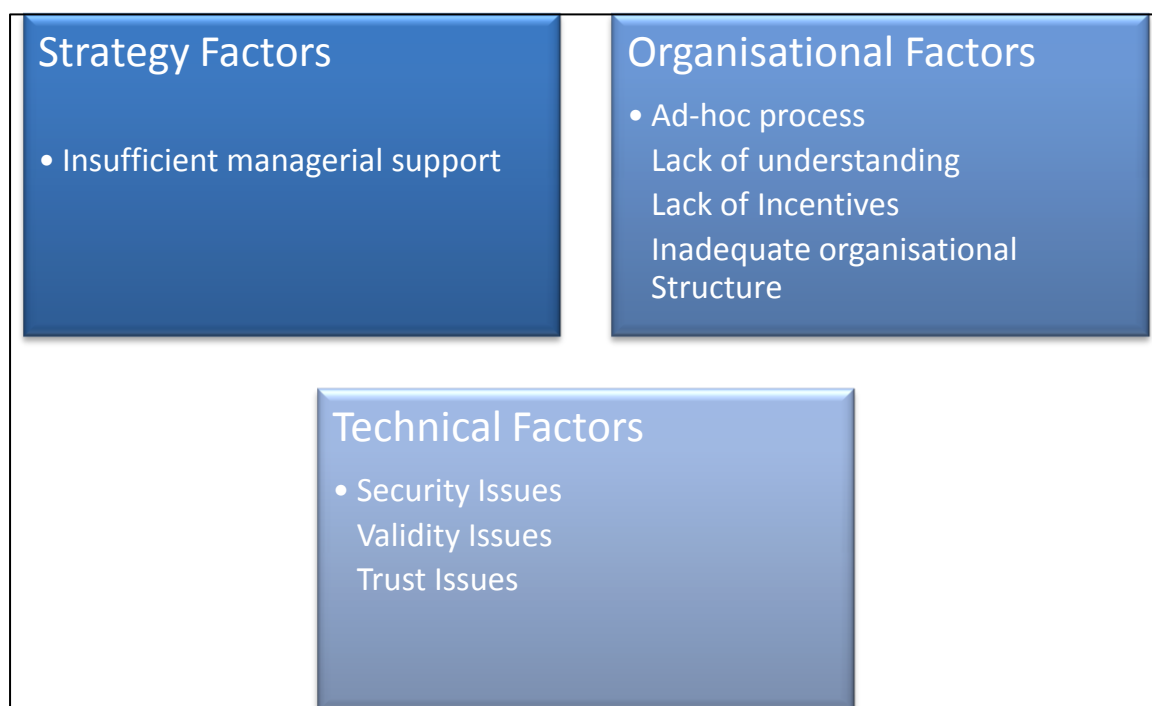


Figure 17: Strategic, Organisational and Technical Tensions

Each of these factors and tensions will be examined further and compared to the literature and to the nature of social networking tools [observed from the case study](#), in an attempt to address these tensions and pave a way forward.

## **5. Critical Factors for the Implementation of Social Networking Tools for Knowledge Management in the Municipalities**

In the basis of the municipalities' case study, it became apparent that a number of factors needed to be in place for social networks to achieve the participation level for knowledge management and to achieve the maturity level at the municipalities. In the following subsections these factors will be discussed. The result of this section is to provide insight into the key components that determine the outcome of social networking tools efforts for knowledge management within this case study. In return, it provides some light into the areas that needs development in theory and practice.

### **Top Managers Commitment and Managerial presence in the social networking platform for knowledge management**

Managers are not just another group of users (Mintzberg, 2011; Alvesson, 2012) and their role in helping the growth of social networking tools for knowledge management should not be underestimated. Previous channels of communication such as emails and instant messaging did not require much effort from management to motivate the utilisation of the tools and managers cannot really look over their employee's shoulders all day and micromanage by saying 'tag that! Make a link! Now blog about what you just did!' (McAfee, 2006, p.26). Nevertheless, as it has been apparent from the municipalities case study, utilizing social networking tools for knowledge management was not automatic and depends greatly on the decisions and actions of managers.

Although the importance of top management involvement and commitment have been highlighted in the knowledge management literature (Mintzberg, 2011; Hasanali, 2002; Holsapple and Joshi, 2000; Jennex and Olfman, 2006; Lam and Chua, 2005; McDermott and O'Dell, 2001; Sunassee and Sewry, 2002; Wong, 2005), a limited few only addressed this issue relative to social networking tools for

knowledge management (McAfee, 2006; Paroutis and Saleh, 2009). While some aspects covered by the knowledge management literature on the role of strategy and management apply to social networking tools, such as aligning the knowledge management strategy to the organisational strategy (Mintzberg, 2011; Hasanali, 2002; Holsapple and Joshi, 2000; Jennex and Olfman, 2006; Lam and Chua, 2005; McDermott and O'Dell, 2001; Sunassee and Sewry, 2002; Wong, 2005), communicating knowledge management objectives (Hackett, 2000; Jennex and Olfman, 2006; Mason and Pauleen, 2003) and establishing new responsibilities and roles around knowledge management (Butler and Murphy, 2007; Davenport and Prusak, 2000; Hasanali, 2002; Roth, 2003) others are distinctive.

Given the nature of these social networking tools, the managerial strategy and approach need to be revisited accordingly. While previous knowledge management systems such as the enterprise resource planning (ERP) required compliance with rules, as demonstrated in earlier sections, this case study reveals that the nature of the social networking tools implemented at the municipalities is based on a participatory, inclusion, bottom-up culture. Participant AAKMO3 elaborates:

*'The nature of the tools are so that they allow for the control of the knowledge to be on the individual owning it, for example using a blog, each individual is able to maintain his own space and has complete control over the information he/she chooses to share. As a result, creating a bottom-up style of knowledge sharing and collaboration'.*

Nonetheless, this does not diminish the role of top managers; managers need to act as role models in adopting these technologies. Participant DMAKMC05 expands: *'Currently there is no leadership figure that took part in the initiative to endorse and*

*promote the usage of social networking tools for knowledge management and the role of such a figure in a hierarchal and political organisation such as the municipalities is very important.'* The Department of Municipal Affairs is in the process of launching an 'Ask the Chairman' blog to foster participation and interactivity. Having mentioned this point, as learned from the case study, the users are the ones who would dictate the best way to use these technologies so managers should by no means impose the way of usage, instead provide the nudge needed to support the users.

### **Alignment of the social networking tools to the day-to-day processes**

The knowledge management literature highlighted the importance of aligning technologies to processes and people in organisations (Alavi and Leidner, 2001; Damodaran and Olphert, 2000; Gold et al., 2001; Hackett, 2000; Malhotra and Galletta, 2003; McDermott and O' Dell, 2001; Roth, 2003), this way employees are more likely to use the knowledge management systems or technologies (Hackett, 2000; Malhotra and Galletta, 2003).

The social networking tools do not necessarily replace the existing knowledge management system in place; the tools can be integrated into the existing platform (McAfee, 2006). Hence, some employees can look at it as extra work or an additional job and most likely not use it, for instance at the Abu-Dhabi municipalities employees feel it is an additional work to the intranet system they have in place. Moreover, when the concept was first rolled out the employees were excited to try out these new tools but as the day-to-day work piled up, they neglected the platform. While there were some basic processes in place there was no level of discipline to stick to these processes, they were not standardized or integrated into each other. In both cases of the municipalities, employees will feel more encouraged to use the



web technologies if they are incorporated as part of their daily routine, as opposed to feeling it is an additional effort or added responsibility to their busy schedules.

Participant DMAKM04 elaborates:

*'It has to support the way that people are already working because you need to pick up the people from where they are now. And then you can start introducing new concepts and systemise what they are already doing and therefore spreading good practices throughout the organisation and discouraging bad ways of communicating.'*

### **Policies and procedures to streamline the usage of social networking tools for knowledge management**

Previous knowledge management systems came with their own set of compliance rules and procedures (Alavi and Leidner, 2001). In contrast, social networking tools by nature are flexible and were purposely designed to be open systems to allow participation and interaction amongst a large number of users (Schneckenberg, 2009).

Nonetheless, it has been realized that when social networking tools were introduced at the municipalities, certain policies and procedures needed to be put in place to ensure data validity and security. A connection between HR, IT and the KM office has not been established and has been deemed to be significant, in order to agree on a set of policies and procedures to avoid a chaotic environment. This presents a challenge to an organisation such as the municipality as the need to find the adequate balance between freedom and control (Schneckenberg, 2009).

In order to do so, participant AAKM002 indicates: *'I feel the way to go is for the four departments, i.e. HR, Legal, IT and KM departments to meet and set some soft guidelines that will articulate and streamline the usage of the Musharaka framework within the municipalities'*. This was also in line with other participants views. They do

not need to have a formal, rigid set of procedures; they could be introduced lightly, just like the example of Microsoft that is presented in appendix 1.

There is a gap in the literature with regards to the issue of policies and procedures for social networking tools. Only two papers have shed light on this aspect (Martin et al., 2009; Schneckenberg, 2009) and more discourse is required to provide a better picture on the situation. This will be highlighted on the further research section.

### **Incentivize the usage of social networking tools for knowledge management**

The knowledge management literature has examined the issue of introducing monetary or/and non-monetary incentives and rewards to encourage the usage of knowledge management systems (Davenport and Prusak, 2000; Hislop, 2003; Jennex and Olfman, 2006; McDermott and O'Dell, 2001; Wong, 2005). Despite social networking tools providing the capacity of social rewards (by pressing the like button or getting a digital reputation) the need for rewards and incentives was still apparent. This is in line with previous studies that outline the employee's motivation level is directly equated to the recognition received from senior management (Oliver and Kandadi, 2006; Paroutis and Saleh, 2009).

In the case of the municipality, a major constraint to usage and participation was the non-existing system for reward or lack of incentives for usage. Employees argued that both monetary and non-monetary incentives were important factors that need to be present to encourage usage. Whilst the municipality performed well at the beginning in providing certificates and awards to the best blogger or the most tagger, these initiatives stopped when Musharaka framework have been formally rolled out. This relates to the previous point mentioned above, there should be an established link with the HR and key performance indicators. This way knowledge sharing would be an indicator and is one of the aspects employees are evaluated on and receive

rewards for. Whether financial or non-financial, both rewards are important. ADMKM01 mentioned: *'in an organisation such as the municipalities, rewards are important to encourage participation. I feel that knowledge sharing should be one of the KPI's embedded in an employee's appraisal system. Employees need to feel that their contribution are acknowledged by managers and supported'*

In summary, within this case study, the need to reward the usage of social networking tools to encourage employees to participate became apparent. The rewards need to be a mix of both monetary and non-monetary. Incorporating knowledge sharing and participation as part of the employee's annual review and rewarding the employees financially for these efforts is important. Just as important, if not more, reward their participation in organisation gatherings, meetings and etc. in front of their colleagues and fellow workers. This way the employees will feel motivated to interact and share their knowledge and experience through the web technologies platform. For example the municipality gave certificates and awards to the most active blogger. Having said that, the quality aspect of these posts or blogs needs to also be recognised and rewarded.

**Target employees that will participate and enrich knowledge by utilizing the social networking tools available**

People are a key component of any knowledge management project (Davenport and Prusak, 2000). The knowledge management literature highlighted the importance of involving users throughout the development of technology solutions for knowledge management (Damodaran and Olphert, 2000; Lam and Chua, 2005; Malhotra and Galletta, 2003; Mason and Pauleen, 2003). The literature on social networking tools for knowledge management (Dzamic, 2009; Lavenda, 2008; Middleton, 2008) and the municipalities' case study revealed that these tools tend to be more appealing to younger generations or enthusiastic early technology adopters.

Given the nature of the social networking tools and from the municipalities' case study, it became understandable that there is a need to focus on employees who are driven, knowledgeable and would like to make a difference because the best outcomes come from the right people. For instance at the start of the project, the municipality focussed on selected members from the municipalities whom they called knowledge champions that were introduced to workshops and led the knowledge management initiative in their entities. These knowledge champions facilitated a self-sustaining effort and are often a combination of keen early technologies adopters who are well networked, technology-savvy, respected opinion leaders, influential experts to which other colleagues would come back to for advice or help.

**Awareness workshops and training on change management and social networking tools need to be established**

Providing a comprehensive user training is essential in every knowledge management project (Damodaran and Olphert, 2000; Hasanali, 2002, Storey and Barnett, 2000; Malhotra and Galletta, 2003; Wong, 2005). Training is one key aspect that was found to influence employee participation (Rogers, 1994) in social networking tools for knowledge management (Paroutis and Saleh, 2009).

As it became apparent from the findings of this case study, social networking tools require a change in mind-sets and organisational culture, hence continuous workshops and training not only on the technologies themselves needs to be in place in order to succeed but also on change management. The municipality hired three change management agents, one for each municipality to facilitate the transformation process. Furthermore, these training sessions and workshops need to be offered continuously not only at the design stage but also at the early implementation to keep momentum. Employees at the municipality expressed their frustration that at the planning and roll-out stage there were workshops taking place,

however once the framework was launched these workshops stopped. *Research participant DMAKMO3 mentioned: "I think there was a phase you know like any project you know during initiation you spend a lot of time training and they did invest a lot of effort in communicating. I don't think it is enough because communication awareness is ongoing. I don't think you can put a timeline from this month to this month and that's it."*

In return, this created a gap and the momentum was not the same. It could be suggested that the awareness workshops and trainings are to be conducted in the language of the organisation. Since the municipality subcontracted Mouchel and all the speakers offering the workshops and trainings were speaking in English, some employees struggled to grasp the new concept, in a foreign language and others who were competent in English felt it would have been more useful if they were in Arabic, since Arabic is the language of the organisation and all their transactions and services are in Arabic. This resulted in some resistance towards the new technologies and change in general.

#### **Adapt the organisational structure to the nature of the tools**

Much has been written in the literature on the importance of adapting the organisational structure to the knowledge management processes (Alavi and Leidner, 2001; Damodaran and Olphert, 2000; Gold et al., 2001; Hackett, 2000; Malhotra and Galletta, 2003; McDermott and O' Dell, 2001; Roth, 2003), nonetheless, this becomes even more significant in the case of applying social networking tools for knowledge management. As this study demonstrated, the nature of social networking tools is to unlock boundaries to participation and collaboration and hierarchal structures can hinder this type of communication and interaction. As highlighted in section 4.7 of the findings chapter, social networking tools work best in

an open environment, in which employees are given freedom and empowered; therefore social networking tools work best in a more bottom-up structure.

In organisations such as the municipality in which bureaucracy and power structure is strong, top leadership commitment becomes essential as they influence the attitude and behaviour of employees. The more top leaders showed presence in workshops at the municipalities for instance, the more the employees felt motivated to learn about these tools and get in the habit of using them.

**Establish a common platform for web technologies to operate in, start small, and then expand**

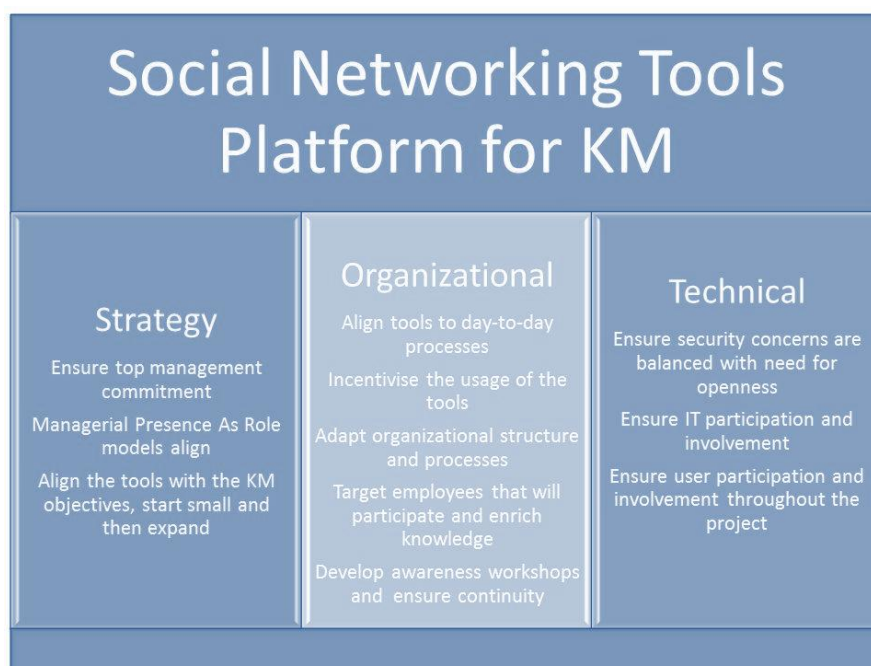
Organisations sometimes come to the conclusion that knowledge sharing is not happening because no one is using the organisational knowledge repository whilst knowledge sharing is actually occurring using a different platform, this condition is often called the 'undernet' (Dalkir, 2011). It is important to have one connected, unified framework instead of many unconnected ones (Dalkir, 2011) and one of the advantages of having social networking tools is that they could be integrated to any existing knowledge management platform (McAfee, 2006). Although the Abu-Dhabi municipality has the largest number of employees and is considered the main branch amongst all municipalities its Musharaka knowledge management framework achieved the least amount of progress. One of the reasons behind the lack of progress is that a different knowledge management initiative/framework was developed in the background, which led to a conflict of interest.

Moreover, it is important to start the implementation of social networking tools in small scale and then expand (McAfee, 2006). It is more effective to start with one web technology and once the users get acquainted with it and familiar, the platform could be expanded gradually. The municipalities started with a sophisticated system

with all the latest tools and technologies. While they are at the forefront of the adoption of the latest tools, employees are having a hard time coming to terms with all the new technologies introduced all at once. Research participant AAKMC02 mentioned: *'I feel many tools were introduced to us at once, while the tools are simple and not difficult to use, I feel it would have been more effective if we started with technology for instance wikis and then expanded once the users got familiar with it and acquainted to using it.'*

Hence, it can be observed from the municipalities' case study that social networking tools can enhance knowledge management processes; however the implementation is not as automatic as some anticipate (Paroutis and Saleh, 2009). There are certain strategic, organisational and technical factors that were observed from the municipalities' case study that needed to be in place before proceedings with the social networking tools for knowledge management. This research highlighted some of these issues (see figure 18).

Figure 18: Social Networking Tools for Knowledge Management Enabling Factors



## **6. Conclusion**

This chapter built on the findings chapter that demonstrated the features of social networking tools to illustrate how the social networking tools at the municipalities facilitated an integrated approach to knowledge management. The social networking tools combined elements from both the objectivist and practice-based perspectives to implementing information and communication tools for knowledge management. In return, the municipalities were able to apply different features of the tools for different purposes. For instance the employees utilised the social networking platform as a mean of exchanging ideas (i.e. practice-based perspective) and the ideas with the highest rating could then be further processed and documented (objectivist perspective). Consequently, the municipalities were able to share knowledge in various forms: explicit and some aspects of tacit knowledge. Using social networking tools, employees exchanged documents (i.e. explicit knowledge) and were able to locate expertise to consult them on an existing problem (i.e. tacit knowledge). Nonetheless, applying social networking tools for knowledge management may present a set of challenges. The set of strategic, organisational and technical challenges encountered by the municipalities were highlighted. In addition, based on the municipalities' case study, the critical factors that need to be considered prior implementation of social networking tools for knowledge management were highlighted. In the next section, the contributions to literature and implication of this study on practice will be outlined, in addition to the research limitations and areas for future research.



## **Academic Contributions**

The thesis contributes to the academic literature in four ways. First, the thesis proposes an integrated approach to the implementation of information and communication technologies for knowledge transfer and integration based on combining the two most prevailing perspectives in knowledge management, the objectivist and practice-based perspectives. Thus far, most contributions focussed on one perspective or the other (Hislop, 2005; Grundstein, 2013). In addition, the implementation of either perspective in organisations has shown to present their own set of challenges in the management and sharing of knowledge. For instance, often the objectivist perspective fell short in delivering the expected outcomes due to overestimating the level to which tacit knowledge can be made modifiable (Kuo and Lee, 2011; Hahn and Wang, 2009). On the other hand, debates still pre-exist in the implementation of a practice-based perspective to knowledge sharing and management, and a consensus has not been reached yet (Walsham, 2001; Pauleen and Yoong, 2001).

Although these two perspectives are radically different and often have been used independently of each other (Hislop, 2005), based on this case study, it can be argued that there are significant benefits that can be sought from integrating aspects of both views within a single framework. While much of the intangible knowledge points to the adoption of the practice-based perspective, some crucial knowledge leveraging elements, such as best practices, still need an objectivist perspective. Therefore, there is an actual need for a balanced integration of both perspectives.

An integrated perspective to knowledge transfer and management is one that acknowledges that knowledge sharing requires a process of 'perspective-making' and 'perspective-taking' (Boland and Tenkasi, 1995), in return developing an

understanding of tacit assumptions (Hislop, 2005). It facilitates knowledge sharing through extensive amount of social interactions (Lam, 2000; Swan et al., 1999), allowing people to develop some level of trust (Kuo and Lee, 2011; Butler and Murphy, 2007; Jarvenpaa and Leidner, 1999; Pauleen et al., 2001). An integrated approach facilitates the collection of relevant knowledge, best-practices, standards and allows organisation of these in a way that it is accessible and searchable (Szulanski, 2003; Nonaka et al., 2001, Nonaka and von Krogh, 2009).

Comparing the integrated approach to the fundamental principles of the knowledge-based view of the firm revealed an alignment between the two. For instance, the capacity for aggregation principle of the knowledge-based view of the firm relates to achieving efficiency of knowledge transfer (Grant, 2002) which is aligned to the objectivist perspective on knowledge management. On the other hand, the principle of specialisation in knowledge acquisition of the knowledge-based view of the firm recognises the need for individuals to specialise in particular areas (Grant, 2002) this makes it aligned to the practice-based perspective of knowledge management. Hence, suggesting that an information and communication technology tool which facilitates both perspectives for the management and sharing of knowledge is consistent with the requirements of the knowledge based-view of the firm. Thus, increasing our understanding and clarifying the role that information and communication technologies play in the implementation/practice of the knowledge-based view of the firm (See section 2.3 of the discussion chapter).

Second, the previous insights allowed the development of a set of information and communication technology features that are in-line with the requirements of the knowledge-based view of the firm and are needed to facilitate an integrated perspective to knowledge management. The recommendations are based on

building on the current capabilities and limitations that social networking tools revealed at the municipalities and the requirements for an integrated perspective to knowledge management. While to a certain extent social networking tools facilitated an integrated perspective to knowledge management at the municipalities, it presented two design limitations. Firstly, the design of the tools is geared more towards knowledge creation and sharing, placing less emphasis on the management of knowledge. Although the processes of knowledge creation and sharing are important, without a system to manage that knowledge it would be difficult for employees to find and access the knowledge that they are searching for and could be of potential benefit to them (Jashapara, 2011). Secondly, there is more that can be done to establish a richer social interaction environment for the employees. Although the current tools facilitated much support for social networking, computer-mediated communication and social feedback, they still have not delivered the level of richness that is essential to build trust (Pauleen and Yoong, 2001) and facilitate more real interaction.

For information and communication technology tools to support the integrated perspective to knowledge management, they need to enable an environment of rich social interaction (Walsham, 2001), one that facilitates interaction between different employees, allows the identification of different expertise (Baumard, 1999) and facilitate a virtual environment that is closer to reality and face-to-face interactions. Such environments will provide more opportunity to discuss potential solutions for problems, discuss new ideas and innovations. Moreover, for information and communication technologies to support the integrated perspective to knowledge management, they need to enable an intelligent system for the aggregation of knowledge (Morris, 2011). A system that allows knowledge to be collected in an

efficient, easy to retrieve manner (Van Zyl, 2009), where the burden is not on the employee to manage the knowledge, but on the tool to understand and provide context to the content based on the employee's browsing history and activity (see section 2.4). The information and communication technology features identified to support an integrated perspective to knowledge management and the guidelines for developing future tools can be tested in future studies and utilised to provide the foundation for the selection and use of information and communication technology tools for knowledge management.

The third area of contribution corresponds to one of the main fundamentals of the knowledge-based view of the firm: the capability of the firm in facilitating the access and sharing of variety types of knowledge (Grant, 2002). This thesis demonstrated how the interactive knowledge management technologies, that have manifested themselves in the form of social networking tools, incorporated the human side aspects to enhance knowledge management within the municipalities. In return, while the approach was able to facilitate the sharing of much of the explicit knowledge communicated, it is shown that it is making some impact in sharing tacit knowledge as well (see sections 3 of the discussions chapter).

While explicit knowledge is easy to articulate and transfer, tacit knowledge proved to be more slow and hard to transfer (Grant, 2002; Ambrosini and Bowman, 2001). Much of the strategy and knowledge management literature have tried to find means to enable the sharing of tacit knowledge. From the municipalities' case study, there was evidence that social networking tools have the capability of supporting the sharing of explicit knowledge and some aspects of tacit knowledge (see section 3 of discussions chapter). The exchanges of documents in electronic forms, posting the rules and regulations at wikis, establishing a unified induction program for new

employees are all examples of how social networking tools enabled explicit knowledge sharing at the municipalities.

Tacit knowledge evolves in organisations with an open culture (Madeuf, 1984), which encourages interaction as opposed to isolation (Stover, 2004) and allows personal contacts with external and internal organisations (Alwis and Hartmann, 2008). In the municipalities case study it was demonstrated how using social networking tools, facilitated conversation amongst employees from different municipalities, employees were able to work together in identifying new ideas, solving problems and discussing any work related prominent issues. Moreover, using the social networking tools, they were able to locate expertise and subject matters to find possible solutions for problems encountered or to get professional advice or opinion. The information presented in the social networking tools is personalised by the user him/herself, they build a digital expression for themselves, identify links and relations to other members and develop weak or strong ties with them. In these ways, social networking tools facilitated tacit knowledge sharing at the municipalities (see section 3 of discussions chapter). Facilitating the sharing of explicit and tacit knowledge is important, as it is one of the factors that lead to organisational competitiveness and sustainability (Becerra-Fernandez et al., 2004).

Fourth, this study contributes to knowledge by identifying the associated benefits and challenges of applying social networking tools for knowledge management (refer to section 3 in the findings chapter). A review of the academic literature since the emergence of social networking tools showed that the existing research is mainly directed towards: what social networking is, how are they structured and distributed and why do they exist (Paroutis and Saleh, 2009; Van Zyl, 2009). Moreover, the majority of the research related to the associated risks and value of social

networking tools for knowledge management has been conducted by private organisations such as Gartner, IBM, KPMG, Clearswift and MessageLabs (Van Zyl, 2009). This study goes further than previous research by empirically showing the dynamics of applying social networking tools at the municipalities' context, particularly the benefits reaped and challenges encountered.

The benefits observed from the municipalities' case study that social networking tools provided in terms of facilitating knowledge management processes and integration include, providing a collective platform for problem solving. Employees across different municipalities were able to find potential solutions for problems they were encountering. Moreover, minimising duplication of work for instead of re-inventing fixes in each department across the municipalities, employees referred to previous threads, posts and discussions to find solutions. Finally, the social networking tools enabled in identifying and locating expertise at the municipalities. Using social networking tools, employees have the capability of adding their profiles to the system with their expertise and contact details, they update the profiles themselves to reflect any additions or modifications. Using these options employees across the municipalities could reach expertise in the area and seek professional advice.

On the other hand, this study identified the associated challenges that faced the municipalities when applying the social networking tools for knowledge management. It was observed from the municipalities' case that applying the social networking tools is not automatic as some organisations may assume, it requires a change in mind-sets and cultural transformation. Particularly challenging to the municipalities was building buy-in and this was particularly due to the following reasons: Lack of

understanding, inadequate organisational structure, ad-hoc and chaotic processes, lack of managerial presence and finally, lack of rewards and incentives.

The above process also enabled the development of key enabling factors that facilitate the implementation of social networking tools for knowledge management. The factors determined within this case study could be used as a baseline for further research and tested against other organisations to develop theory (see figure 18). Figure 18 highlights the strategic, organisational and technical factors that were observed from the case study as important factors that should be considered when applying these social networking tools to an organisation context. Despite the popularity of these tools in personal context, when introduced to an organisation they bring out strategic, organisational and technical challenges (Paroutis and Saleh, 2009). A certain discipline governed the process of developing these factors, including: the bringing together of already existing literature on strategy (Butler and Murphy, 2007; Davenport and Prusak, 2000; Hansen et al., 1999; Hasanali, 2002; Jennex and Olfman, 2006; Lam and Chua, 2005; Mason and Pauleen 2003), processes and technologies for knowledge management (Alavi and Leidner, 2001; Butler et al., 2006; Davenport and Prusak, 2000; Lam and Chua, 2005; Stenmark, 2002) and the features of social networking tools that were observed from the case study and trying to find a fit between the literature and tools. In some cases the same strategy, processes and technical factors apply to the adoption of these tools in organisation, in other cases, given some unique aspects of these tools and some new set of features it introduces to organisations, some adjustments to the previous practices advocated by literature was required.

The enabling factors covered a range of areas including: the role of managers, alignment of the processes, streamlining policies and procedures, incentivising the

usage of tools, targeting employees that will participate, conducting awareness workshops and finally, adapting organisational structure. Table 21 summarizes what was already known on the topic and what this study added to our knowledge.

**Table 21: what was already known on the topic and what this study added to our knowledge**

What was already known on the topic	What this study added to our knowledge
<p><b>Information and communication technologies supporting knowledge management can be categorised into two perspectives (Hislop 2005): the objective perspective that is concerned with the codification of knowledge (Hansen et. al 1999, Smith 2004) and practice-based perspective which focuses on providing rich and open communication mediums (Hislop 2005).</b></p> <p><b>Both perspective has shown to present their own set of challenges in the management and sharing of knowledge (Hahn and Wang 2009, Goodall and Roberts 2003, Walsham 2001)</b></p> <p><b>Scholars identify that there is a need for an alternative system design for knowledge management solutions philosophies (Butler et. al 2007, Davenport and Pursak, 2000, Tenaksi and Boland 1996).</b></p> <p><b>The knowledge-based view of the firm argues that knowledge is an important resource for organisations (Grant 2002, 1996) and knowledge sharing amongst individuals and teams is key to achieve competitive advantage (Grant 2002, Jashapara 2011).</b></p> <p><b>Knowledge takes the form of explicit (know-what) and tacit (know-how). The knowledge-based view recognises the difficulty of sharing tacit knowledge that is valuable to organisations prosperity (Ambrosini 2003 and Grant 2002). Scholars and practitioners are constantly trying to find means to enable tacit knowledge sharing amongst their employees and teams (Hislop 2005, Sapsed 2005, Taylor 2007).</b></p> <p><b>There is a focus now on interactive knowledge management technologies taking the form of social networking tools to facilitate knowledge management and sharing (Ali et. al 2012, Paroutis et. al 2009).</b></p>	<p>From the findings of the municipalities' case study, it can be argued that social networking tools provide an alternative design philosophy. They combine elements from both the objectivist and practice-based perspectives. Employees can discuss their points of views, interpretations using a common, open platform. Knowledge is captured and can then be further processed. This integrated approach facilitated the process of applying different knowledge management approaches to different situations; in return the municipalities had access to various types of knowledge. This study proposes an integrated perspective to the implementation of ICT's for KM. It develops features that need to be incorporated in ICT's to support and integrated perspective.</p> <p>Within the context of the municipality, social networking tools demonstrated potential in facilitating the process of explicit and tacit knowledge sharing. The tools enabled explicit knowledge sharing for instance through exchanging documents in electronic form and tacit knowledge sharing through allowing collective problem solving, continuous discussions and the locating of expertise and subject matters.</p>
<p><b>Social networking tools emerged and we understand from the existing literature: what social networking are, how are they structured and distributed and why do they exist (Paroutis et. al 2009, Van Zyl 2009, p.907).</b></p> <p><b>There is a gap in the academic literature to the associated benefits and risks that these tools present to knowledge management in organisations (Paroutis et. al 2009, Van Zyl 2009).</b></p> <p><b>Due to the spontaneous success of different social networking platforms (for e.g. Wikipedia and Blogosphere) some scholars and organisational leaders believe that applying these tools for knowledge management is automatic (Paroutis et. al 2009), or have a 'build it and they will come' attitude (McAfee 2006).</b></p>	<p>The municipalities case study presented in this study, went beyond identifying the nature of these social networking tools to examining the dynamics of applying these tools for knowledge management at the municipalities. The associated benefits of these tools relative to the municipalities were identified and the risks encountered by municipalities upon the implementation of these tools were listed.</p> <p>This study demonstrated that applying the social networking tools for knowledge management is not automatic as within this context, these tools were not as pervasive as some identify them to be, applying them requires some work from different parties within the organisation. A model was developed to be further tested that highlights the kind of factors that needs to be considered prior the implementation of social networking tools for knowledge management.</p>



## **Practical Implications**

The research has contributed to the practice of knowledge management in four ways. Firstly, by highlighting the difference between the objectivist perspective and the practice-based perspective and by demonstrating how social networking tools at the municipalities lend themselves to both perspectives of information and communication tools that support knowledge management. From this illustration, organisations can understand more the fundamental nature of these tools and the principles that underpin them. Organisations can refer to this categorisation to gain an insight on the similarities of social networking tools to previous knowledge management systems and what is different about these tools compared to existing knowledge management systems. More importantly, organisations may consider integrating the objectivist perspective and the practice-based perspective to achieve knowledge management objectives. For instance, the social networking tools could be used when in need for an open system that enables browsing and sharing of different interpretations, taken for granted values and assumptions, this way adopting a practice-base perspective. Simultaneously, the social networking tools can be used as a central source of knowledge where knowledge is stored and accessed when needed, this way adopting an objectivist perspective. In return, the organisations may consider this approach to establish a balance between organisational efficiency and innovation.

Secondly, and in relation to the point mentioned above, a set of features that information and communication technologies need to incorporate in order to support an integrated perspective to knowledge management have been developed. These set of features can be used to guide the selection and use of information and

communications technology tools for knowledge management. For instance, organisations looking to implement an integrated perspective to information and communication technologies for knowledge management, should look into the richness of social interaction that these technologies provide, in addition to capability of the tool in facilitating the capture of relevant knowledge. This way the organisation will be able to transfer a variety of knowledge that is essential to achieve a competitive position.

Thirdly, by providing the linkage between knowledge sharing and social networking tools, organisations can explore the capabilities of utilising social networking tools as a medium for sharing explicit and some aspects of tacit knowledge. Organisations can attempt to tap into knowledge using the collaborative, participative social networking tools to find solutions for problems, locate expertise and the aggregation of information in an efficient manner, despite the dispersed geographical location and time frame. For instance, using the social networking tools the municipalities utilised the codification strategy to document the lessons learnt, best practices and form a standardized package for new joiners with the necessary information and template. In addition, the municipalities used the social networking tools for to implement personalisation strategies for instance problem solving across different communities and discussions with expertise.

Fourthly, organisations can refer to this study to understand that the implementation of social networking tools for knowledge management process is not automatic as many vendors that are trying to sell these tools to organisations claim. Based on the municipalities' case study, the application of these tools needs to be introduced gradually and requires tremendous efforts including awareness workshops, adjusting on organisational, processes, culture and structure. Organisations may examine the

associated benefits and risks that are introduced by the emergence of social networking tools for knowledge management. This study provides insight on the kind of issues that might arise from using social networking tools for knowledge management. The issues can be of, firstly, strategic nature for instance, within this case study, insufficient managerial support. Secondly, organisational nature such as: ad-hoc processes, lack of understanding, lack of incentives or inadequate organisational structure. Finally, the issue could be of technical nature, such as: security, trust and validity issues.

Finally, building on the aforementioned, organisations can use the list of enabling factors (figure 18) developed to guide them through the implementation of social networking tools for knowledge management. Particularly, the role of managers, the set of processes that need to be in place and the infrastructure that has to be available. For instance, given the high adoption rate of these social networking tools in personal life context, does not mean that the managers should have a 'build it and they will come' attitude, this case study demonstrated that managers need to play an active role in encouraging participation of employees in the work context, they should not determine the way of usage but act as role models in the process. Moreover, this case study revealed that to encourage usage, the municipalities had to align the social networking tools to the day-to-day processes and incentivise the usage otherwise the system will get neglected. Furthermore, from the municipalities' case study it became apparent that policies and procedures needed to be put in place to streamline the usage of social networking tools, these technologies promote freedom (Schneckenberg, 2009) but when introduced to an organisational context, there needs to be an element of control without tampering on the flexible nature social networking tools offer. Finally, from the municipalities' case study it was observed

that these tools work best in less hierarchical structures and the municipalities' had to adapt their organisational structure to these tools. These are all examples from the municipalities' case study that organisations and managers can refer back to when considering the implementation of social networking for knowledge management.

The key contributions to academic literature and the implications on practice were highlighted in this section. The limitations of this study and some areas for further research will be discussed next.

### **Limitations of the Study**

There are five limitations that need to be acknowledged regarding the present study.

The first limitation concerns the extent to which the findings can be generalised beyond the case study. Given the novelty of the social networking tools, many organisations are now starting to adopt them for knowledge management. The municipalities are pioneers in adopting these tools for knowledge management in the UAE, hence they were selected for this study, and given the lack of previous research in this area, it was deemed more significant to focus on a case study to enable a rich, in-depth understanding (Yin, 2011) of the tools and the role they play in supporting knowledge management. Although the municipalities at various emirates of the country have been interviewed, the number of cases is too limited for broad generalisations. However, readers could benefit from the amount of detail presented with regards to the tools themselves and the features they offer for knowledge management, in addition to the documentation of the process of applying the social networking tools for knowledge management and the kind of factors that need to be considered and the kind of challenges that may subside. Further empirical evaluations, nonetheless, are needed to replicate the findings in different contexts and surroundings.

The second limitation has to do with the lack of prior research studies, for instance, a maturity model for social networking tools for knowledge management is non-existent. In this case, I have used the well-established capability maturity model that is found in the literature to assess the stage of implementation of these tools for knowledge management in the Abu-Dhabi municipalities. Moreover, undergoing this research, helped identify points for further research and gaps in the literature that will be listed in the following section.

The third limitation concerns the time limitation; the time frame available allowed the capture of the implementation of the social networking tools at their early stages. While this provides an opportunity to understand the kind of challenges encountered in the initial stages of implementations, having had more time, I would revisit the case to see how it progressed along the different implementation stages and identified the unique set of challenges to each stage of implementation.

The fourth limitation is related to the point raised above; since the municipalities were at the initial stage of implementation of the social networking tools, the sample size encompassed the first generation of users of these technologies at the municipalities. In addition, time limitations did not allow interviewing all the first generation of users. Hence, in-depth interviews with representatives from each municipality's entity were conducted.

Finally, most interviews were conducted in English; hence, for participants who are not using their first language, they might have had some difficulty in expressing some terms and specifics. In some instances, the participants requested that their interviews to be conducted in Arabic. In these cases, there might be a degree of

error in getting the exact translation; however, efforts were made to translate the interviews as accurately as possible.

### **Future Research**

This research has looked at social networking tools and the potential they provide to the municipalities in Abu-Dhabi, the challenges of early implementation and concluded with some suggestions relative to the context of study. It serves as a starting point for further research in the area within the same context (government organisation) or across different contexts (businesses and industries) to compare and contrast.

Moreover, this study enabled the identification of gaps in the literature in terms of social networking tools for knowledge management and facilitates the identification of areas for future research. The first gap in the literature corresponds to web technologies maturity model for knowledge management. While there are various knowledge management maturity models in the literature (Paulez and Perc, 2002; Kochikar, 2000; Shelvin et al., 1997) and a communities of practice life cycle model (Wenger et al., 2002) there is currently no maturity model for web technologies and knowledge management. A maturity model is vital to help assess the current level of knowledge sharing and knowledge activities within an organisation and it can serve as a good road map to show what steps need to be taken to move forward. It is also useful in aligning any new knowledge management roles and responsibilities that will be needed in order to optimise the knowledge management efforts throughout the life cycle. Organisations very often look at web technologies as the silver bullet that will put all its knowledge management processes in line immediately (McAfee, 2006). That is not the case, like any other technological tools, implementing web technologies for knowledge management is a process (Paroutis and Saleh, 2009).

Once a maturity model is established in the literature examining the set of challenges encountered in each stage of the model would also be useful and fill a gap in the literature.

Secondly, more recent papers on knowledge management called for a pluralistic approach to knowledge management practices (Ali et. al, 2012; Powell and Ambrosini, 2012) and one of the features of social networking tools is despite their different approach to structure, they are compatible with already existing knowledge management practice (McAfee 2006). Hence, a research on how can these social networking tools be added to the knowledge management channels and platforms already existing could be of high significance to the literature and practice.

Thirdly, a potential area for future research is a study on maintaining a balance of freedom and control in the social networking platform for knowledge management. Much has been written on the issue of freedom and control in knowledge intensive organisations, the discourse needs to be extended to encapsulate social networking tools for knowledge management (Scheneckenberg, 2009). This may lead to the establishment of policies and procedures that govern the implementation of web technologies for knowledge management (Martine et. al, 2009). Given the novel nature of these tools, and since they originated from mass personal use, organisation are often negligent about what kind of issues these technologies might present and how to react to these issues. Also, the fact that these technologies are about providing knowledge workers with freedom and empowerment (Scheneckenberg, 2009) does not mean that organisations cannot set soft policies and procedures to guide the usage for using these technologies in a personal setting is different when used at an organisational setting.

Finally, similarly to the area mentioned above, given the novel and unique nature of these tools, if they were implemented for knowledge management in organisations the strategy literature on the role of management (Paroutis and Saleh, 2009; McAfee, 2006) in the implementation of knowledge management initiatives needs to be revisited and extended. I have touched upon this aspect in this research; however, there is a capacity and need for more. For instance the role tops managers should play in the roll-out of the social networking tools and the role middle managers should play. In addition, how could managers ensure a receptive culture is in place and how they can offer support and encourage the usage of these tools for knowledge management.



## Appendix 1

### Examples of Policies and Procedures for Social Networking usage in organisations

The UK Government Communications Network's Review of Social Media, they suggest the following actions:

- (1) Develop a strategic, evidence-based approach, integrating existing activities and communications strategies.*
  - (2) Educate managers by raising awareness of what Web 2.0 technologies are available, the opportunities they offer and the risks they raise.*
  - (3) Develop a code of conduct and toolkit for the use of Web 2.0, providing a clear steer to employees and managers on the use of social media for work and personal use.*
  - (4) Learn to listen by adopting focused and sustained efforts to understand, map and track the use of relevant Web 2.0 technologies.*
  - (5) Set out a business case for using Web 2.0 technologies, including a phased implementation of access to social media tools.*
  - (6) Avoid replication by engaging with existing technologies before developing in-house ones.*
  - (7) Regularly evaluate the use and effectiveness of Web 2.0 technologies in the organisation.*
- Source: Martin et. al (2009, p.377)*

Another example is from IBM's social computing guideline that encourages the use of web 2.0 and enterprise 2.0:

- (1) Know and follow IBM's Business Conduct Guidelines.*
- (2) IBMers are personally responsible for the content they publish on blogs, wikis or any other form of user-generated media. Be mindful that what you publish will be public for a long time – protect your privacy.*
- (3) Identify yourself – name and, when relevant, role at IBM – when you discuss IBM or IBM-related matters. And write in the first person. You must make it clear that you are speaking for yourself and not on behalf of IBM.*
- (4) If you publish content to any web site outside of IBM and it has something to do with work you do or subjects associated with IBM, use a disclaimer such as this: "The postings on this site are my own and don't necessarily represent IBM's positions, strategies or opinions."*
- (5) Respect copyright, fair use and financial disclosure laws.*
- (6) Don't provide IBM's or another's confidential or other proprietary information. Ask permission to publish or report on conversations that are meant to be private or internal to IBM.*
- (7) Don't cite or reference clients, partners or suppliers without their approval. When you do make a reference, where possible link back to the source.*
- (8) Respect your audience. Don't use ethnic slurs, personal insults, obscenity, or engage in any conduct that would not be acceptable in IBM's workplace. You should also show proper consideration for others' privacy and for topics that may be considered objectionable or inflammatory – such as politics and religion.*
- (9) Find out who else is blogging or publishing on the topic, and cite them.*
- (10) Be aware of your association with IBM in online social networks. If you identify yourself as an IBMer, ensure your profile and related content is consistent with how you wish to present yourself with colleagues and clients.*
- (11) Try to add value. Provide worthwhile information and perspective. IBM's brand is best represented by its people and what you publish may reflect on IBM's brand ([www.ibm.com/blogs/zz/en/guidelines.html](http://www.ibm.com/blogs/zz/en/guidelines.html)).*

## Appendix 2

### Interview Questions:

1. Name
2. Position
3. How long have you been working at the municipality?
4. Can you tell me a little bit about the 'Musharaka' framework?
5. What is your role within Musharaka?
6. How familiar were you with the importance of Knowledge Management before the implementation of 'Musharaka'?
7. Please tell me about your **experience** with Musharaka
8. Do you feel that the social networking tools (communities of practice and interest) implemented as part of the 'Musharaka' framework **add substantial value** to 'Musharaka'? If yes, in what way? If not, why not? Or what do you like about the social networking tools implemented as part of Musharaka? Is there a particular tool you favor?
9. Do you feel social networking tools (communities of practice and interest) that were implemented as part of 'Musharaka' have the potential to increase **employees job effectiveness**? If yes, in what manner? If not, why not?
  - a. Do you believe that the use of social networking tools implemented (communities of practice and interest) as part of Musharaka **provide a collective platform for problem solving and sharing** amongst peers? If yes, in what way?
  - b. Do you believe that the use of social networking tools (communities of practice and interest) implemented as part of Musharaka **eliminates organisational resource wastage by avoiding reinventing the wheels**? If yes, in what way?
  - c. Do you believe that the use of social networking tools (communities of practice and interest) implemented as part of Musharaka enables **the aggregation of information in an efficient, easy to retrieve and share** manner?
10. Do you feel social networking tools (communities of practice and interest) that were implemented as part of '**Musharaka**' **introduced you to a global list of contact details** and **eases the process for you to locate expertise**? If yes, in what manner? If not, why not?
11. Do you feel social networking tools (communities of practice and interest) that were implemented as part of 'Musharaka' **encourages a culture of sharing** and in return

this **contributes to an increase in job moral and motivation**? If yes, in what manner? If not, why not?

12. Do you **encourage and promote** the use of social networking tools (communities of practice and interest) for knowledge management? If yes, in what way? If not, why?
13. How did you ensure that the **employees were aware** of the social networking tools (communities of practice and interest) available and they were **comfortable** using them?
14. Is there a system that **rewards the usage** of social networking tools (communities of practice and interest) by employees?
15. Have you faced any **obstacles or challenges** in implementing the social networking tools (communities of practice and interest) for knowledge management? If yes, how did you overcome these challenges.
16. Do you **fear that employees will not use the social networking tools** (communities of practice and interest) due to their busy schedules or use them in a way that does not lead to productivity (i.e. spend too much time posting)? If yes, how will you address this?
17. Do you have any concerns over the **validity of the content**, since it is user generated and do you have any measures put in place to ensure the validity of the content?
18. Do you have or do you get any concerns with regards to the **security** aspect of the social networking tools (communities of practice and interest) for Musharaka? For instance trust and privacy issues? If yes, how do you go about them?
19. How important do you feel is the **managerial role** in adopting the social networking tools (communities of practice and interest) for Musharaka?
20. Do you feel the **environment and culture** at the Municipality encourage the use of social networking tools (communities of practice and interest) for knowledge management? If yes, in what way? If not, why?
21. What **feedback** have you received from the users after the implementation or use of the social networking tools (communities of practice and interest) that are part of the 'Musharaka' framework?
22. Of all the things we discussed, what do you see as the **key ingredient for a successful** use of social networking tools (communities of practice and interest) for knowledge management?
23. Is there anything else you would like to tell me about social networking tools (communities of practice and interest) for Musharaka?

I might have some follow up questions would you be okay with me contacting you by phone or email for further information, need be?

## **Interview Questions to Consultants**

Kindly introduce yourself and your job and responsibilities

Can you tell me a little bit about the 'Musharaka' framework (what does it entail, the objectives of it and etc.)

How did you reach to the conclusion that 'Musharaka' framework was a proper fit for the Municipality?

Could you kindly describe to me the process of developing the 'Musharaka' framework

Did you face any challenges when developing the 'Musharaka' framework, if yes, what were they and how did you overcome them?

Social networking tools were added as part of 'Musharaka' framework, could you kindly describe the ones that have been incorporated

What lead to the decision of incorporating these tools?

What are the anticipated benefits of using social networking tools for knowledge management?

Did you face any opportunities or challenges when developing these tools for the municipality? If yes, what were they?

Are you happy with the outcome of these tools for knowledge management?

In your opinion, what are the key success criteria's for the implementation of social networking tools for knowledge management?

What is your advice to organisations using social networking tools for knowledge management?

Is there anything else you'd like to tell me?

## Appendix 3

### Participant Information Sheet

#### **The Role of Social Networking Tools in Supporting Organisational Knowledge Management: The Implication for Government Organisations (The case of the Municipalities).**

*You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.*

The objective of this research project is to understand the role of social networking tools in supporting knowledge management within government organisations. 'Musharaka', the framework developed by the Abu-Dhabi, AlAin and Western Zone Municipalities have been selected as a case study. The research study will run throughout this year (2011) and next year (2012), in which the researcher will interview managers, knowledge staff and knowledge champions to understand their experiences of utilizing social networking tools for knowledge management in government organisations.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

If you decide to take part you will be interviewed for 40-60 minutes and you will be sent a manuscript with the answers you provided for review, if you wish. There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. The information you provide will help me, the researcher, understand how best to utilise social networking tools for knowledge management in government organisations. The information collected may not benefit you directly, but what I learn from this study should provide general benefits to employees, companies, and academics.

The information collected will be kept strictly anonymous and cannot be traced to particular individual. The researcher will use a code to identify participants and protect their identity. The participant identity will not be released without the permission of the participant. The researcher will ensure that the information will not be used for any non-research purpose. In addition, abiding by the 1998 Data protection act, the researcher:

- Will process all material fairly and lawfully
- Will only use the data for the purpose of this research, the data will NOT be further processed incompatible with the purpose
- Will ensure the data is adequate, relevant and not excessive in relation to the purpose
- Will keep data up to date where necessary and will not keep data longer than necessary

The results of the research will be used as part of the researcher dissertation requirement for the PhD degree. The participants can get access to the results by contacting the researcher at [redacted] or [redacted]. In addition, if you have any questions or concerns, you may contact the researcher at [redacted] or at [redacted]. If they have any concerns about the way in which the study has been conducted, you can contact my supervisors Professor Véronique Ambrosini at [redacted] or Dr. Rory Donnelly at [redacted].

Thank you for taking time to read the information sheet.

## Appendix 4

### Participant Consent Form

#### **The Role of Social Networking Tools in Supporting Organisational Knowledge Management: *The Implication for Government Organisations (The case of the Municipalities).***

You are being invited to participate in a research study about the use of social networking tools for knowledge management. This research project is being conducted by Ms. May AlTaei as part of her PhD study at The University of Birmingham. The objective of this research project is to attempt to understand the role social networking tools have on the practice of knowledge management in government organisations. It is being conducted across the three municipalities: Abu-Dhabi, AlAin and the Western Zone. The research will focus on the 'Musharaka' framework that is implemented across the municipalities. Managers, knowledge staff and knowledge champions will be interviewed across the three municipalities as part of the research project.

There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. The information you provide will help me understand how best to utilise social networking tools for knowledge management in government organisations. The information collected may not benefit you directly, but what I learn from this study should provide general benefits to employees, companies, and researchers.

The interviews conducted will remain anonymous, no one will be able to identify you. Nothing you say on the interviews will in any way influence your present or future employment with the municipality.

Your participation in this research study is completely voluntary. You do not have to participate. You may stop at any time without penalty to you.

If you have any questions or concerns about being in this study, you may contact me at [REDACTED] or at [REDACTED]

By signing this consent form below, you are stating the following:

- The details of this research study have been explained to me including what I am being asked to do and the anticipated risks and benefits;
- I have had an opportunity to have my questions answered;
- I am voluntarily agreeing to participate in the research as described on this form;
- I have been given a copy of this document for my records;
- I may ask more questions or stop participating at any time without penalty.

Print name:

Signature:

Date:

## Appendix 5

### Social Networking Tools at the Municipalities

This appendix sheds light on the social networking tools that were implemented at the municipalities, in terms of identifying the tools implemented, their various uses at the municipalities and an account of the experiences of knowledge workers using these tools.

#### Collaborative Workspace

The collaborative workspace was a popular tool of choice amongst employees at the municipalities. Employees interviewed made many references to the use of collaborative workspace for instance, knowledge champion AAKMC02 mentioned: 'one of the social networking tools that I use the most is the collaborative workspace tools' and knowledge management officer, DMAKMO03 added 'amongst the tools that are more widely used in the Musharaka framework is the collaborative workspace'. A collaborative workspace is defined within the Musharaka framework communities of practice as a special working environment where all participants can access the same documents/ folders. It allows users in varying geographic locations to collaborate dynamically and share ideas.

Employees within the municipalities identified that the community collaborative workspaces were used when the community members wished to work collectively on documents or other files but are in different working locations and the documents are not yet ready for publication to the full knowledge store. For instance research participant WRMKC01 described his usage of this tool: 'Given that the western region municipality is in a rural area and very far from the city, I often found it hard to work together with my counterparts across the different municipalities. Using the collaborative workspace facilitates the process of working with my colleagues on a single document, at my own time and the changes made are visible to all my colleagues'. He elaborates: 'Once the changes are approved by all team members and we are comfortable to share the documents with others, we get to publish it for public access.'

In addition, the employees at the municipalities identified that the collaborative workspaces was also used by the community to store the most up-to-date set of certain frequently used

documents e.g. project lessons learned. Furthermore, the knowledge management office regularly reviews these workspaces to help identify any documents that would also be of benefit to the wider municipal employees and should be uploaded to the main knowledge store.

## **Blogs**

A blog that is implemented as part of the Musharaka framework is defined as any type of website, usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. The head of the knowledge management office (DMAKM01) describes blogs as: 'personal content for any members of the community to contribute, with each blog being owned by one member. Content is free and can relate to personal points of view or specific experiences related to the topic area of the community.'

Employees at the municipalities identified that they using blogs is effective for multiple purposes. The first recurring theme is the capability of blogs in facilitating team communication. Research participant AAKMC04 explains: 'one of the most unique features of blogs is their easy maintenance. For example, if I was to create a personal blog as part of Musharaka, it can be created very quickly with minimum cost of maintenance.' DMAKMC03 added: 'I can update my blog at anytime from anywhere without having to go back to an IT Department'. Research participants explained that blogs are interactive in nature so they have the option of allowing readers to post comments and to see what others have posted. WRMKMO1 commented: 'these interactive, fast features enabled us to use blogs as a tool for project management and collaborative brainstorming in the municipalities. Since we are likely to have access to the same information, we are able to bounce ideas off each other.' An employee from the Western Region Municipality (WRMKC02) commented 'by having access to information about the inner workings of the municipality we feel more included which inspires us to take action on that knowledge or further develop it'. Hence, this process



is likely to provide an advantage of increased knowledge sharing, in return contributing to higher levels of output or productivity.

Furthermore, the HR department at the municipalities identified that they used blogs to help in internal recruiting efforts. Research participant DMAKMC05 explains 'in terms of internal employee recruiting, we felt at the HR department that blogs are ideal for posting job openings or staffing needs'. The participant elaborated 'when posting an open position, answers to frequently asked questions about the job can be posted once for all interested parties to read as opposed to answering the same question through time-consuming telephone calls'.

Moreover, on a second, follow-up visit to the municipalities, the Department of Municipal Affairs head expanded on the future use of blogs at the municipalities, DMAKM01 mentioned that they will be using blogs for service development and inviting feedback from the public: 'blogs are potential tools that we are planning to use to develop new services or to improve existing ones. Our next step is to allow the Musharaka framework to be accessible to the public. In addition to blogs creating a collaborative working environment amongst employees and inviting feedback from our current employees, we will invite the government clients to provide us with feedback. Also, we can use the blogs as a platform to promote our services to the government clients'.

When asked about the fear of security in terms of the blogs platform, DMAKM01 mentioned that the role of the KMO will be to monitor blogs and ensure that they are written in a way that is aligned with the terms of reference for that community.

### **Wikis**

Wikis within the Musharaka framework are web pages that can be edited and amended by viewers of the pages; they enable users to contribute content freely to build up a knowledge base specific to the community. All members can contribute around related themes, subject areas or information.

Employees across the municipalities have used the Musharaka wiki to fulfil different purposes. The HR department used it to establish an induction program, DMAKMC05 comments 'we used the wiki as a platform to introduce the new hires to the key policies and procedures of the municipalities. We also incorporated the necessary templates new hires might require, so instead of looking for the templates themselves, they can find them in the Musharaka framework'.

Moreover, the wiki was used at the municipality to create a 'who's who' guide to the community. In essence, it is an indication of the expertise available and who can provide answers. This information is not intended as a definitive guide it, however, provides a useful starting point to assist navigation within the municipalities. In addition, the wikis were used to establish a glossary of terms and key concepts, in which if an employee is not certain about a certain terminology he can refer to this wiki for clarification.

Furthermore, the wiki was used to document lessons learnt in the topic area of the community, AAKMC01 mentions, 'the idea is that after we are done with any project, we reflect on the lessons learnt and share this with our colleagues across different municipalities'. Upon the second visit of the municipalities, DMAKMO2 discussed that there next step now involves 'examining these lessons learnt in attempt to create a library of best practices'.

Upon asking the employees at the municipality why do they choose to use the wiki platform, they attributed this to different reasons. Firstly, participant WRMKM02 mentioned that it provides 'an advanced document and content management/development through open and simple editing access that encourages participation by many parties. For example, self-publishing by contributors is made easier by eliminating administrative bottlenecks'. Other participant (ADMKM01) identified that it 'facilitates collaboration and communication between employees in networks and enhancing knowledge building, sharing and searching for instance we can easily include knowledge from outside sources through document upload,

email integration and RSS'. Most of the participants attributed to the usage to the simplicity and ease of use compared to the older collaboration tools such as SharePoint, Lotus Notes, etc. DMAKC03 elaborated 'wikis provides us with a platform for communication that is user-friendly, collaborators are able to make editions and updates in real time, employees across the municipalities can work on the same document simultaneously. In addition, each change made; is archived and you can revert back to undo changes easily, finally, the structure of the wiki is flexible, it is not predetermined structure; can be used for a variety of applications.

### **Newsletters**

Newsletters at the municipalities Musharaka framework are used for light-hearted content that the community wishes to circulate as a brief bulletin. The newsletter may be intended for an audience wider than just the community. These can then be posted on the Community pages for sharing.

Newsletters can be produced to highlight key events, projects or activities its members have been involved in. They have been used at the municipalities for different purposes. The knowledge management officer (WRMKM01) at the western region municipalities mentioned 'I used the newsletter platform to raise awareness to the Musharaka framework. I created regular newsletters that I was sending to the employees, the newsletter gives them update on what's new, what are the new features of Musharaka'. WRMKM01 explains 'I also use the newsletter to highlight top achievements in terms of Musharaka contributions. This encourages participation across the platform.'

Another employee, DMAKMC04 mentioned in the second visit to the municipality, during the follow up interview 'As an employee in the strategic management department we are using the newsletters as part of a project managers community.. so that everybody knows what's happening around the project management within the Municipalities. It give us a great resource as well as we are going to get a fairly large community and because Musharaka goes across municipal system'. AAKMO03 elaborates: 'these efforts for creating a newsletter

can be shared. For example if every municipality publishes one newsletter per year we already have every quarter a newsletter that comes out updating everybody who should receive the information.'

### **Discussion Forums**

Discussion Forums that are implemented as part of Musharaka are an online discussion sites, providing an easy and informal mechanism for people to ask questions. They can also cultivate new ideas through posting questions and stimulating discussion.

Employees at the municipalities distinguished discussion forums from other tools such as mails, chats and instant messaging. Participant DMAKMC05 mentioned 'using the discussion forum it is easier for me to find content that is part of the in going or past discussion, search is usually an integrated functionality in forums'. Moreover, participant AAKMO04 mentioned 'discussion forums allow us to discuss topics with many people'. This will be elaborated on below.

Employees at the municipalities identified that they used discussion forums to post topics posing questions to other community members. For instance participant DMAKM09 mentioned 'when in doubt, I would use the discussion forum to post my problem and I benefit from the potential solutions exchanges amongst my peers and counterparts across different municipalities'.

Other employees from the municipalities identified that they used discussion forums to post topics seeking views from other community members. For example, participant AAKMC03 mentioned 'using a discussion forum within the Procurement Community enabled us as procurement agents to ask our colleagues for advice on the best type of Service Level Agreements (SLAs) for a Design and Build Contract'.

Employees mentioned that discussion forums that are part of the Musharaka framework were user friendly, simple to use and encourage the bouncing back and forth of ideas. As a

result, employees felt encouraged to use these forums for knowledge creation and exchange.

### **Members List**

The Musharaka framework that is implemented at the municipalities provides a list of all members of the community as well as a link to their entry in the people and skills directory. Employees WRMKM003 identified ‘the members list and people and skills directory enabled us to create an extended list of contact details spanning across the different municipalities of people with whom we have strong professional ties, co-workers, colleagues, who they trust enough to be associated with and even recommend to others’.

Employees at the municipalities distinguished these tools from other electronic directories with participant DMAKMO05 mentioning: ‘This contact list is different from other electronic directories in that the information is linked directly to the profiles that we created and maintained for ourselves’. In return, allowing for automatic updates of changes to contact details, current activities, interest and specialist skills and expertise, in a searchable format.

The employees at the municipalities expanded on the opportunity of the aforementioned, with AAKMC04 identifying: ‘these graphical expressions of personal relationships, allow us as users to identify mutual relationships which can be exploited for introductions or recommendations’. Employees at the municipalities identified that using the members list and directory allowed them to search for and locate experts and learn from the material that the expertise find useful such as: industry articles, blogs, manuals, wiki’s and other information that the expert finds useful, and so discover answers and solutions.

### **Embedded Components**

The aforementioned channels and platforms at the municipalities were enhanced by adding the ‘SLATES’ features, which are attributes that distinguish social networking tools, they were introduced in the literature review. The ‘Search’ feature relates to the efficiency of

users to locate dispersed information. Employees at the municipalities' identified that using this feature, they had no problem finding the information they were looking for (see section 3.3 of the findings chapter).

Moreover, the authoring feature relates to the user-driven content development and publishing across the organisation. As it has been demonstrated earlier in this section, the use of various social networking tools in the municipalities such as: the collaborative workspace, newsletters, wikis, forums, members list and blogs facilitated content that is developed by the employees themselves and can be modified accordingly.

The tags relate to the establishment of a peer-driven classification and validation of online content across collaborating enterprises. Employees at the municipalities were encouraged to 'tag' their contributions to the Musharaka framework, in an attempt to facilitate the process of searching for information and content (see section 3.3 of the findings chapter). Whilst the municipalities is making progress in tagging their contributions, employees feel doing so requires a cultural change in the way of doing things and hence requires time(see section 3.3 of the findings chapter).

The extensions attribute involves drawing out from previously gathered data of user activities to enable users to be advised to initiate other valuable activities. This was used at the municipalities to identify weak or potential ties when locating expertise.

The signal or RSS attribute involves sending alerts to users of the changing state of an element of interest. Within communities at the municipalities the RSS was used to provide an alert to indicate when a Wiki, Blog or Discussion Forum is newly created or updated. Community RSS was particularly useful as it ensured that users were fed information even when they are not logged into or accessing the Musharaka framework. Employees identified that it was user friendly and enriched their experience by for example immediately indicating when a response has been posted to a user's query within a discussion forum.

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